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ABSTRACT

Examples of effective economics teaching from kindergarten through college, contained in this 11th volume of the Joint Council for Economic Education series, are selected from the 1972-73 entries in the Kazanjian Foundation Awards Program for the teaching of economics. Arranged by grade level, 22 descriptions of original teacher-developed projects provide class type, scope and duration of activities, goals of the activities, motivational devices and initiatory activities, teaching techniques, photographs or samples of student work, culmination activities, and evaluation techniques--all of which are elements judged in the awards program. At the end of each grade level chapter is an appendix entitled "Good Ideas in Brief." The teaching experiences described include cross age learning, consumer economics, student apprentices in the business community, a recycling business, working with slow learners, and a training system for graduate student instructors. A cumulative index of reports in the previous 10 volumes is available from the editor. (JH)

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ECONOMIC EDUCATION EXPERIENCES OF ENTERPRISING TEACHERS

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A Report
Developed from the 1972-73 Entries in
The Kazanjian Foundation Awards Program for the Teaching of Economics

volume
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GEORGE G. DAWSON, *Editor*

Joint Council on Economic Education
1212 Avenue of the Americas, New York, NY 10036

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FOREWORD

Each year after the judges for the Kazanjian Awards Program complete their task of selecting the outstanding entries, they are impelled to make the same comment: What a tremendous program of economic education there would be if all these teachers were in the same school system and could have a chance to share their experiences with colleagues!

In the absence of that reality, the yearly volume of *Economic Education Experiences of Enterprising Teachers* has come to represent the closest thing to an annual "all-star" team of teachers of economics. Within Volume 11, as in the previous volumes, readers will be exposed to remarkably creative, effective examples of teaching at every grade level and in conjunction with virtually every subject. Theoretically, a school system which set itself to emulating and adapting what is included in these volumes could achieve the outstanding sequential program dreamed about by the administrators and judges of the Awards Program. We should be thrilled to learn of school systems which use the publication in this way.

To take full advantage of the Awards Program, we urge educators not only to extract the riches contained in this and previous volumes but also to gain additional information about the experiences. This can be done by writing directly to the teachers and also to the following address at which many of the entries are located and from which they may be borrowed, including the student and teaching materials described: Vernon R. Alden Library (Kazanjian Materials Collection), Ohio University, Athens, Ohio 45701.

The 12th Annual Awards Program is now underway and we once again invite teachers to submit entries. Application forms and assistance can be secured from Affiliated Councils and Centers for Economic Education throughout the nation or directly from the Joint Council.

The Joint Council extends its appreciation and commendation to Dr. George G. Dawson for serving as Editor of this publication. We are indebted to Mr. John C. Schramm, Managing Director, and the Board of Trustees of The Calvin K. Kazanjian Economics Foundation for their continuing support of the Awards Program.

George L. Fersh, *Associate Director*
Joint Council on Economic Education and
Coordinator, Kazanjian Foundation Awards
Program for the Teaching of Economics

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EDITOR'S INTRODUCTION

Those of us who have been involved with The Kazanjian Foundation Awards Program for the Teaching of Economics for many years have had no doubt about the great value of that Program and of the award-winning projects. Nevertheless, in these times when "accountability" has become a common word in educational circles, and when those who support educational programs and projects rightly demand that their worth be demonstrated, it is comforting to know that the Awards materials have been tested and found effective. Professor Andrew T. Nappi, Director of the Center for Economic Education at St. Cloud State College in Minnesota, recently completed a controlled experiment in which teachers and classes using award-winning projects were compared with similar teachers and classes not using the materials. A standardized test of economic understanding revealed that those using the materials achieved significantly greater gain scores than those who had not used them.[1]

In an earlier analytical study of selected winning entries, Dr. Nappi stated: "Certainly one of the major objectives of economics instruction . . . is to help students develop their ability to think rationally, objectively and with a modest degree of sophistication about economic issues." The achievement of this objective, he asserted, "requires not only a knowledge of economic facts about the economy but also an analytical way of thinking about economic problems and the conceptual tools to help in this thinking." He implied that those submitting their work to the Awards Program should stress this goal in their teaching and should provide evidence that students can apply economic facts and concepts to new situations and problems.[2]

Those who are contemplating submitting an entry to the Kazanjian Awards Program, and those who have submitted entries but failed to win, might profit from a generalized description of winning projects. It must be realized that the articles published in this book are usually condensed versions of the original reports, and that some of the material teachers submit cannot be depicted or even described easily.[3] Winners are usually those who show originality and who describe their experiences in such a way that

[1] For details, see Andrew T. Nappi, "An Evaluation of Award-Winning Elementary Teaching Materials from the Kazanjian Program," *The Journal of Economic Education*, 5 (Spring 1974).

[2] See Andrew T. Nappi, A Study of High School Economics Teaching Materials Entered in the Kazanjian Awards Program. Ph.D. thesis, Ohio, University, Athens, 1971.

[3] The full reports may be obtained from the Vernon R. Alden Library (Kazanjian Materials Collection), Ohio University, Athens, Ohio 45701.

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other teachers can easily adopt them. The class situation is clearly set forth, the scope and sequence are given, the goals are listed, the motivational devices are explained in detail, and there are step-by-step accounts of the teaching techniques. Photographs and or samples of student work are included, the culminating activities are described, and the means by which the project was evaluated are explained. The report is neat, well organized, and in conformity with the requirements set forth in the Awards Program application form.

It should be noted that the competition is keen, and that each year it becomes more difficult to win than it was the year before. Prospective entrants would be well advised to seek the comments and criticisms of others before submitting their projects. In particular, the teacher whose formal preparation in economics is minimal should consult an economist regarding the accuracy and appropriateness of the economics contained in the report. Many projects which represent an enormous amount of time and effort, and which contain superb ideas and materials for teaching, fail to capture an award simply because they contain little or no economics or because the economic content is inaccurate.

The Editor deeply appreciates the work of those teachers (nonwinners as well as winners) who are contributing so much to the elimination of economic ignorance in our society. It is hoped that more and more teachers will enter the Awards Program in the future, sharing their knowledge and experience with others for the good that this can do as well as for the possibility of financial rewards.[1]

The Editor acknowledges with sincere thanks the cooperation of the teachers whose ideas appear in this volume. They have been most patient and understanding in permitting us to use their material and in agreeing to our many editorial revisons. The encouragement and support of Mr. John C. Schramm, Managing Director of The Calvin K. Kazanjian Foundation, has helped immeasurably to make this book possible.

GEORGE G. DAWSON

Editor's note: Because of increasing publication costs, we have been forced to omit the cumulative index of reports appearing in all previous volumes. Readers who have need of this index may obtain a single copy by writing to the editor. Kindly include a stamped, self-addressed envelope.

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[1] In "The Impact of the Kazanjian Awards Program on Winners," an unpublished study completed by the NYU Center for Economic Education in 1970, it was reported that the overwhelming majority of educators who had received prizes or "honorable mentions" received benefits far beyond the Kazanjian Awards themselves. Recognition by their school systems, promotions, salary increases, consultant work, service as resource persons or consultants in economic education workshops, and writing and editing for commercial publishers are some of the benefits emanating directly from the Kazanjian Awards.

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CHAPTER ONE

Pets and Profits

A Second-Grade Economics Project

Florence M. Worthington
Oakhurst Elementary School, Oakhurst, New Jersey

Background and Goals

In June of 1972 I was asked to teach a selected group of second graders the following September. Our system provides for a transitional experience for those children who are unable to cope with the traditional first-grade program. Twenty youngsters who had exhibited learning problems of one type or another were placed in the selective grouping. It is my feeling that such classes can cause the members to feel that they have been set apart in a negative way, so I decided to devise a curriculum that would indeed set them apart, but in a dramatic and positive way. I hoped that this would improve their self-concept, and develop values and skills that would lead to mature behavior patterns.

Although our area is in the average to high-income category, a large proportion of my pupils were from low-income families. Many qualified for the free lunch program, and half of the mothers were employed outside the home. My concern was for the development of a curriculum that would help the children to help themselves and their families. It would have to be of interest to parents and bring about their involvement and cooperation.

By including economics into the daily routines, I hoped to show these failure-oriented students that they play a vital role in the real world, and that they are not only consumers but potential producers as well. I planned to point out the complex interrelationship between people and institutions, and all of this would be done not through replacement of the regular curriculum, but by enriching it. It is important for teachers to realize that one can include economics in one's lessons without sacrificing other subject matter. Students should learn that the economic decisions they and their families make affect not only themselves but the entire community and economy. Economics lessons also provide an excellent means of teaching the problem-solving approach and of developing the ability to reason.

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Activities

Since I was accountable for the academic growth of my pupils, any project undertaken would have to involve all the disciplines in the second-grade curriculum. It would also have to maintain interest for an entire academic year, and a means of providing rewards for effort and achievement would have to be built in. The children would earn points for making progress at their own ability levels. However, certain grade level achievements (such as common basic word lists and math skills) would be expected of all. Personalized packets of work were prepared each week. Records of points earned were kept on a graph, each child being responsible for recording his or her own progress. Prizes consisting of inexpensive toys were awarded for achieving a certain number of points, but money would have to be raised to buy the toys.

It was decided that we would sell something to raise money. I rejected the idea of a bake sale because mothers would do the work and economic activity would be confined to collecting money. I ruled that anything we sold would have to be produced and paid for by the class. The first attempt at earning money involved the sale of popcorn. I loaned the class the money to buy bags, oil, corn, butter and salt, expecting to be repaid from sales revenues. We borrowed corn poppers, but these varied, so that there were problems with quality control. It took all day to make the popcorn with the small poppers, we were not able to get our academic work done, and the task of cleaning up was overwhelming. Although there were plenty of customers, the profits were disappointingly small. We didn't make much money, but we did learn some important lessons (about efficiency, quality control and production costs) that established the groundwork for the future.

Everyone realized that any future project would require more careful planning. Before starting a business we would have to estimate the costs. We learned about money and capital and how businesses are organized and operated. Parents who were in business served as valuable resource persons. A restaurant owner came to the school and told us how his business was initiated, how it grew and developed, how it is operated, how consumer demand affects it, and the like.

This was a good time, too, to introduce the problem-solving approach and to apply it to our own situation. First, we stated our problem in precise terms and decided upon a goal. (The goal was to make more money with less cost and effort.) Various alternatives were considered, such as making popsicles, or cold drinks, or doughnuts or some sort of handmade item. The feasibility of each suggestion was explored, along with potential demand. (We decided against cold drinks, for example, because the coming of cool weather might reduce demand.) After analyzing the probable consequences of each alternative, we decided which proposal would solve our problem. Role-playing proved valuable as we explored the various suggestions.

The children were beginning to understand such concepts as production costs, division of labor, interdependence and factors of production. The small amount that we had made from selling popcorn was deposited in a bank, and the manager explained the role of banks in our economy. He told

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us that banks collect the savings of some people and provide loans to others who want to do such things as start a business. He pointed out that one should expect to take risks in the hope of making profits. Interest was also explained. Many films (we saw about 40 during the course of the year) helped to clarify concepts. Among the titles are "Economics, It's Elementary," "Why Communities Trade Goods," and "A Day in the Life of a Dollar Bill." Lawrence Senesh's *Our Working World,* published by Science Research Associates of Chicago, was also very helpful. Yet, we still had not yet hit upon a product we could sell.

Then, one of the pupils reported that her pet dog had had puppies and that she had not been able to sell them or even to give them away. This led to a discussion of pets and our responsibility for them. We had a class pet, a Siamese cat named Samantha, who was considered to be a permanent member of the class. I pointed out that Samantha was a pedigreed cat and that if she were mated with a pedigreed male her kittens could sell for as much as $50 apiece. Pedigreed Siamese are scarcer and in greater demand than mongrel pups. This launched an intensive discussion of the pros and cons of breeding Samantha.

What would the veterinarian's bills be? How large might the litter be? Would the kittens need medicine? How much would it cost to feed them? Suddenly, the children became more concerned about vandalism. The school had been vandalized the year before, and broken windows had become almost routine. Now this would be a threat to our "investment." Could we get insurance to cover this possibility? Although the great risks were recognized, we decided to go ahead with the project.

After Samantha had presented us with five kittens, expert advice was obtained from a person experienced in handling cats, so that we had some idea of what our costs might be. A $50 loan was obtained from the bank, and the reality of interest became readily apparent when the bank discounted it in advance. (We actually received $48 and had to pay back $50.) We were able to make most of the needed equipment with the help of our Technology for Children program, but we had to buy medicine and vitamins. The school nurse taught me how to administer the required injections. (This was related to our health lessons.) We had to learn what foods would be good for the kittens (and why), and how to handle them. The children would provide the labor, receive points for their efforts, and later exchange the points for the money earned. Of course, at this point no one knew how much that would be.

The school's business administrator visited the class and explained how to keep books and ledgers. The class elected a "bookkeeper" and a "lawyer." The problem of getting insurance was taken up, and it actually became the subject of a discussion at a statewide meeting of insurance agents. When we found that it would take too long to obtain a policy from an insurance company, we relied upon my own homeowner's policy. Businessmen advised us on marketing procedures, advertising campaigns were conducted, and orders were taken. All five of Samantha's kittens were quickly sold. We had been in contact with a number of business organizations (and even with the Health Department) about our project, and a newspaper gave us extensive coverage. The prices ranged from $35 to $50

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(those painting papers with the cats had to pay the higher price). The banker had required each child to sign for the loan and had impressed upon them the fact that they were all responsible for repaying. This had engendered serious classroom discussion of the importance of being reliable, of how and why interest is paid, and of what might happen if we did not raise enough money to repay.

In our various field trips relating to the project, we learned how businesses keep information, how specialization and division of labor function, how businesses rely upon one another, what costs there are, and so on. We saw an animal hospital in operation, went to the Cat Fanciers Association to pay our $2.00 registration fee, and observed assembly-line techniques at a popular hamburger chain.

After repaying the loan and covering other costs, we had over $100 left. Of course, this could not be considered profit in its entirety. The children had to be paid for their labor on the basis of points earned. (In fairness to two children who had entered the class too late to acquire many points, it was decided that each pupil would get a flat $5.00 beyond the earnings based upon points. This decision was made by the children themselves.) The amounts received ranged from a low of $5.28 to a high of $9.06.

We planned a shopping trip so that the children could spend their earnings. They were free to spend the money as they saw fit, and parent chaperones were advised not to interfere. Each would have to face the problem of limited resources vs. unlimited wants. They had learned to inquire about such things as the safety of items they might select, guarantees, discounts and exchanges. The manager who gave us a tour to explain how the store was organized had to answer many questions about the meaning of "at cost," "special sale," "below cost," and the like. For weeks they had been looking at newspaper ads, TV commercials and catalogs. Many had asked their parents to take them on investigatory trips to the toy store before our group visit. We had viewed such filmstrips as "Let the Buyer Beware." Upon our return, we analyzed our purchases, discussing the factors that had influenced each choice, which ones were wise, and whether they had been the result of long-range planning or impulse buying. About a week later, we reevaluated the purchases. Some continued to be delighted with their toys, but others were now disappointed. Everyone wrote letters to the producers either to complain or to express their delight. (Some of the manufacturers quickly sent replacements for unsatisfactory items.) We also had lessons on the way in which our own spending entered into the circular flow, and how ups and downs in business activity occur in relation to too much or too little spending.

Conclusion

My underlying theme for the year had been: "Going to School Is Your Job." The classroom had been like a small part of the world of work, and the children had earned tangible rewards for their efforts. They found that when they did a good job they not only helped themselves but also contributed to their families and to the community.

In reviewing the economics activities for the year, I at first thought of

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creating an instrument to make a formal evaluation. However, this seemed artificial because of the emphasis upon the discovery and inquiry approach that had been stressed. So many learnings were behavioral and difficult to measure mathematically. There was, nevertheless, tangible evidence of success. For example, in June the school held a bake sale. Upon returning from this sale, my pupils engaged in a heated discussion about prices. Applying what they had learned about production costs, they raised questions regarding the prices of the various goods and sought reasons for those prices. Apparently, transfer of learning had taken place. This was the first time I had seen second graders show such an awareness and engage in this type of analysis without teacher direction.

Parents showed considerable interest in our activities—far more than usual. The parents of children in the special classes rarely like to admit that this is the case, but now they were not only openly discussing it but involving friends, neighbors and relatives as well. One child who had hysterically and physically resisted going to school became a constructive and proud member of the class. Children who had been stigmatized and ridiculed for being in the special group became the envy of those in the regular classes.

Public interest increased markedly. Whereas it had once been difficult to get local newspapers to report school activities, now they sought us out. Indeed, one paper complained when it was "scooped" on the economic education story. The project generated much greater administrative support. The township's elementary supervisor has announced the introduction of a graduate-level course in economics, and an economics workshop was established for the entire school staff in the spring.

In summary, economics provided the key to my search for a way to produce a child-centered curriculum, not restricted to scholarly and intellectual activities alone, which would help youngsters to gain status, acquire confidence, enhance their self-images, and interact with the community at large.

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Sing a Song of Seasons — Economics in All

Economics for Second Grade*

Mary B. Floyd

Ballman Elementary School, Forth Smith, Arkansas

Introduction

When I entered my second-grade classroom on the first day of the 1972-73 school year, I had no way of knowing that I was embarking on one of the most fascinating experiences of my teaching career. There was an unusually large number of slow learners in the class. Some came from broken homes; others from stable homes with low incomes and poor educational backgrounds. But I soon discovered that I also had some alert and intelligent youngsters as well. Some of the parents were laborers, clerks, waitresses and the like; but some were executives, firemen, policemen, engineers, teachers and nurses. How could I effectively teach such a heterogeneous group of children?

Previously I had taught economics to young children through the use of poetry. With this group, however, I needed an "in-depth" curricular approach that would provide common experiences for all the pupils, appealing to the very slow as well as the very bright. I would use the block of time in my daily schedule allocated to science and social studies to teach economics, but I wanted a theme around which a series of economics activities would be oriented—a theme and activities that could keep the youngsters electrified throughout the school year. On the third day of school I read Robert Louis Stevenson's poem "Sing a Song of Seasons." The children enjoyed it, and as seasonal activities are part and parcel of every child's school life, I now had my theme—"Sing a Song of Seasons—Economics in All." I saw, too, that not only science and social studies but the language arts, music and art could be included as well.

The objectives were to help the children to develop the skill of using economic tools of reasoning in making daily decisions, to acquire knowledge of the analytical technique for solving problems, and to see the importance of economics in their lives. By pinpointing the economic concepts in seasonal activities, using the school and the immediate environment as a curriculum laboratory, and engaging in "fun things" such as viewing films and reading poetry and stories, I hoped to have the children learn the following economic concepts:

*This is a summary of an original report 40 pages long and accompanied by much supporting material. The full report can be obtained from the Vernon R. Alden Library (Kazanjian Materials), Ohio University, Athens, Ohio 45701. *The Editor.*

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- There are too few economic resources to satisfy all the wants of the people.
- To produce the things we need and want we must have people, tools, raw materials and management (productive resources).
- Decisions on what to produce, how to produce and for whom to produce are determined largely by the consumer in our market economy.
- People in households sell their productive resources to business and use the income received to buy the goods and services produced by business. (The circular flow.)
- At the core of most economic issues is the need to make intelligent choices from among competing alternatives.
- People attempt to increase their output through such things as specialization and exchange, technology, and establishing economic institutions.
- As specialization and exchange develop, people become more economically interdependent.

Part I—Economics in the Summer

During the late summer there are many insects and bees on the school ground, and the children brought specimens to the classroom. What does this have to do with economics? I read Christina Rossetti's poem "What Does the Bee Do?" to the class, and we viewed the film "Honey Bee" which illustrates the concept of specialization as different kinds of bees perform particular functions. Note how production, consumption, wants, needs, goods, services and specialization can be related to Rossetti's little poem—

What does the bee do?
  Bring home honey.
What does Father do?
  Bring home money.
And what does Mother do?
  Lay out the money.
And what does baby do?
  Eat up the honey.

The concepts implicit in the film and the poem were reinforced by the filmstrip "We Are All Consumers," which points out that everyone is a consumer, that our wants are unlimited, that households have limited incomes, and that the consumer must make choices.

We made charts showing how the honey bees specialize in producing a good, how the colony resembles a family home, how some bees produce services (such as caring for the young and guarding the nest). Once the children saw how the concepts applied to two familiar situations—their own homes and the bee colony—we went further and found that these principles also worked for the city as a whole. The film "Cities and Commerce: Where We Get Our Goods and Services" was used for this purpose. In class discussions the children identified the various services performed by people in Ballman School, and noted how the scarcity problem applies at all levels of economic activity. I had the children list the goods they wanted, estimate

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the cost of the items, and then compare that amount with the money they actually had. They could see, quite clearly, that scarcity affected them and that wise choices would have to be made. The opportunity cost principle was included, for in selecting one particular good the individual sacrifices another that could be obtained with the same money. To involve the parents and to provide practical application to what had been learned, I gave the following assignments:

1. Surprise your mother by producing a special service for her this evening.
2. Talk with your father about his job. Is he a producer of goods or of services?
3. Ask your father why he saves part of his income.
4. Discuss with your parents why you now understand that you cannot have everything you want.
5. Surprise your father by telling him you know the meaning of "economizing" and ask him to suggest ways you can help the family economize.

We also had a unit on "The World of Work in an Ant Colony," again relating economic concepts to science lessons and extending the principles previously learned. Ant colonies could be compared with cities, and we found many similarities between the economic activities of ants and people. To stress ideas of production and saving, the children and I wrote a play entitled "The Ants and the Grasshopper." The ants in the play work and produce while "Gus Grasshopper" foolishly "fiddles his time away." When winter comes the ants have a warm nest and food that they have stored, but Gus is cold and hungry. Although the ants provide him with food and shelter, Gus learns that he must work, produce and save. He sees how the ants cooperate and engage in specialization. We performed our play for the other primary grades and the parents.

During this phase of our study we also had guest speakers. A municipal court judge spoke about economics and government, discussed the relationship between our democratic government and the world of work, and contrasted our freedoms with the situation in command economies. An education official talked to the children about the role education plays in preparing people for the world of work and answered many questions about specific jobs in which they were interested. The film "Economics—It's Elementary" was used for a review of such concepts as wants, specialization, services, trade and money. The filmstrip "Working and Earning" provided meaningful information on the jobs needed to produce different goods and services and why some workers earn more than others. Another film entitled "Labor Unions" showed how workers in the U.S. are very productive, well paid and organized to bargain with employers for better working conditions.

Our studies of economic concepts during this phase were bearing fruit, as evidenced by one parent's comment—"What are you teaching my child? He uses terms about business and money that I don't understand!" The foundation had been established, and we were ready to move on to the second phase.

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Part II—Economics in the Fall

"Let's grow a pumpkin!" This was one child's response to the question of what we might do during the Halloween season. I explained that there was not enough time, but we could pretend. We read a story entitled "Tommy's Pumpkin" and decided to dramatize it. This was to be a springboard to a study of productive resources. Tommy plants a pumpkin seed in the hope of having a big jack-o-lantern. His friends marvel at his success and ask an ex-farmer for an explanation. He tells them that Tommy used the right productive resources, and he explains how land and other natural resources, labor, tools (capital resources) and entrepreneurship were used in producing the pumpkin. The class then made a chart entitled "Factors of Production in Ballman School," showing the various human, natural and capital resources which make it possible for the school to function. We also discussed the fact that productive resources are scarce, that this affects their price, and that their price in turn affects the prices of things children want (such as toys). For out-of-school assignments the children did such things as listing the capital resources found in their homes, identifying the natural resources found between the school and their homes, and interviewing parents to find out about the human resources used in their businesses.

Following heavy fall rains, we toured the school grounds to observe the effects of soil erosion. Using films, filmstrips, books and other printed materials we learned about the economic loss that soil erosion can cause. A district conservationist presented a slide show, "The Conservation Story," and told how the soil helps us to supply many of our basic needs. We made charts on the causes and prevention of soil erosion and on the importance of soil to our economy. We discussed our basic needs and noted how many of these are met directly or indirectly by things that come from the soil. One child even went home and advised his father to protect the soil in their backyard garden—"If the soil washes away, we can't grow food. Food in the supermarket is expensive."

As the fall election approached, a polling booth was set up in the foyer of the school building. They knew about the presidential election but I had to explain about the election of senators, congressmen, governors and other state officials, as well as city and county officers. A proposal for a tax increase was also on the ballot. The election provided an opportunity for me to teach about goods and services produced by government, and how we use our tax money to pay for them jointly. Films and filmstrips on government and public utilities were shown. We listed many of the things (such as parks, pools, police protection, education and postal service) that government provides for us. A mock election was held in the classroom, with members of the class running for mayor, city director, and the like. Unlike some real politicians, when these candidates promised new facilities they warned the voters that they would have to pay more taxes as a result.

Interest in Thanksgiving also helped to create economic awareness. The story of the Pilgrims contains a number of economic concepts, at least by implication. After reading about the food served at the first Thanksgiving, the children wanted to know what it would cost to serve the same meal today. With the assistance of the manager of the school cafeteria, we com-

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puted the cost of the entire meal and the cost per person ($2.45). We compared the self-sufficient nature of the Pilgrim economy with the interdependence that typifies our own. The film "Everyone Helps in a Community" illustrated the point, for it traces the development of a community from a farm in the wilderness to a modern town. We read a book about farmers to learn how important farmers are to our economy and how the farmer, in turn, relies upon many other people. I asked the children to list the people that their families depend upon, and then to list the goods and services their families provide for other people. An interesting result was that they learned that many of the families represented in the classroom were very dependent upon one another.

This led to a discussion of the circular flow concept. I gave the pupils a large flow chart which included a government building, a bank and a market. The children then drew in the family breadwinner at the appropriate place, showing him (or her) on the way to work. At another point they showed the breadwinners actually at work, and then depicted them coming home with checks or currency. This income was then shown being used to make payments to the consumer market, the government and the bank. Each child explained where his or her parents worked and whether they produced goods or services.

Returning to the Pilgrim story, we viewed slides of the recreated Plymouth Plantation and saw how the Pilgrims used productive resources. We drew murals of the natural, capital and human resources they had used, and dramatized the role of the entrepreneur in the early settlement. One of my pupils had several items on display at an art exhibit in a Fort Smith studio, and her work focused upon the economic life of the early American settlers.

Part III—Economics in the Winter

Using colorful construction paper, we arranged a bulletin board display in the shape of a Christmas tree which we called "The Economics Tree." Viewing our economic system as a gift to all of us, since it made it possible for us to receive gifts at Christmas time, we placed on the tree the economic concepts (such as opportunity cost, market, goods, services and specialization) that had been learned. Each child suggested a different concept. It was made clear that parents have to earn money to buy Christmas gifts, and that they purchase gifts often from savings or by buying on credit. The opportunity cost enters the picture, for by selecting one particular gift we give up the opportunity to have some other. The choices made by consumers act as "dollar votes," guiding and directing the production decisions of business firms. Capital goods, labor, raw materials and entrepreneurship are needed to produce the gifts, and many people work to satisfy our wants at Christmas. On the last day of school before the Christmas holidays, each child picked a "gift" from the tree, took it home, and explained to his or her parents how this concept related to the things received for Christmas.

Interest in the Christmas Club plans sponsored by local banks led to a study of money and banking. To the tune of "Oh, Christmas Tree," we wrote a song about Christmas Clubs. In part it went—

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Oh, Christmas Club, oh Christmas Club,
How glad I am I have you!
By saving money through the year
I now can buy some Christmas cheer.
Oh Christmas Club, oh Christmas Club,
How glad I am to have you!

The idea of scarcity and the need to make wise choices was expressed in a parody of "Santa Claus is Coming to Town." We entitled it "You Can Spend Your Money Only One Time," and some of the verses were—

You'd better watch out,
Take care what you buy;
Make a wise choice,
I'm telling you why—
You can spend your money only one time.

You'd like to have a bike,
And a record player too,
But you can have just one of the two;
So what are you going to do?

This activity really "caught on!" The children wanted to do more of the parodies and sing them for the room mothers at the Christmas Party. To the tune of "Jingle Bells" we showed that resources used for one thing cannot be used for another.

To follow up the Christmas Club song we had a bank official come to explain how money is used as a medium of exchange, and how banks accept deposits and provide checking accounts. She also explained interest. After viewing the film "Money and Its Uses" and the filmstrip "Money and Exchange," we read Benjamin Elkin's *True Book of Money* and took an imaginary trip to a bank. Several stories relating to money, checks and savings were read also. In role-playing sessions we dramatized the use of barter and money, and set up a store. I wrote a simple account of my own purchase of a car by borrowing from a Credit Union to show the class how credit can be used. As a result of this part of our study several children opened savings accounts.

When we returned to school in January after a heavy snowstorm, I had the pupils examine the economic effects of snow. The film "Treasures in Snow" explained how snow helps to store water, provides a source of power for generating electricity, and is used for recreation. They also learned that snow adds to our costs when it snarls traffic, slows down business activity, and contributes to the deterioration of the streets. The class made a large mural entitled "The Economic Benefits of Snow," depicting ways in which snow contributes to recreation (attracting skiers, for example), transportation (the navigable Arkansas River is partially supplied with water from melting snow), electric power (water partially derived from snow is a source of power), and irrigation (reservoirs are fed, in part, by melting snow).

Lincoln's birthday provided opportunities to study about slavery, the crops produced on plantations in the old South, and the impact of the cot-

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ton gin. This was also a chance to deal with values—how could we justify the existence of slave labor in a free enterprise system? How do the choices open to free people differ from those open to slaves? We compared the economic impact of the cotton gin with the impact of modern machines that we could see in the school itself. The cotton gin had made it possible to increase cotton production—it was a "resource extender" that made work easier and faster. How do such "resource extenders" as typewriters, adding machines, lawn mowers, paper cutters and projectors increase the school's output? We took pictures of the school's resource extenders and made a mural to demonstrate their use. The vice-president of a local newspaper came to our classroom and explained how resource extenders are used in the newspaper business. The children also asked their parents how tools and machines helped to increase productivity in the home.

Washington's birthday led to a study of the American Revolution and, of course, to the economic causes of the colonists' complaints. We reviewed the reasons why taxes exist, saw films and filmstrips such as "Why We Pay Taxes," and listed the different kinds of taxes we pay. The list included the sales tax, income tax (which we dramatized with play money), property tax, gasoline tax and school tax. County and city levies were also examined. To test their understanding of taxation, I asked such questions as:

- What happens when the people ask the government for more goods and services?
- If people pay more taxes, what happens to their purchases of other goods and services?

Part IV—Economics in the Springtime

In Arkansas, the third week in April is set aside each year to teach children about bird life. In addition to the usual studies of bird habits, their beauty and their usefulness, we studied the economic importance of protecting birds. First, I divided the class into three groups representing the basic needs of food, clothing and shelter. Group One was to find out how birds help to supply our food, Group Two would show how they help to supply clothing, and Group Three would ascertain how they contribute to our shelter. I helped each group to locate resource materials and consolidate information, but they would be entirely responsible for preparing and presenting their findings to the class. We invited speakers from the Audubon Society, viewed films and filmstrips, read books, and obtained help from parents. Group One found that birds eat weed seeds and insects that attack crops, that some kill harmful rodents, and that game birds and domestic fowl are an important part of our food supply. The children made a large mural to present their findings to the class. Through a panel discussion and large charts, Group Two showed us how birds help to protect crops (such as cotton) from which we derive fibers for textiles, thus indirectly contributing to our supply of clothing. Group Three made paper sack puppets and had each puppet tell how birds contribute to our shelter by protecting the forests from insects, for wood is a valuable building material. They also help to

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reseed forests and grasslands, as the seeds they have eaten pass through their bodies and take root elsewhere. Thus, as protectors of natural resources, birds perform a vital economic role. The children organized a Bird Club and prepared a program to show other classes the economic importance of protecting birds.

As Arbor Day approached, we prepared for a tree planting by studying the different parts of a tree and the many different kinds of trees. We learned about the many valuable products we get from trees. The principal, Mr. Dailey, brought a maple tree from his own property and presented it to the class. After planting the tree we discussed the various productive resources we had used in this project, and the pupils drew pictures to illustrate them. We examined the economic benefits of trees, and found that they help to provide us with food, shelter, fuel, paper, transportation and even clothing. We learned that there are factories in Fort Smith making wood products, and we found out how many jobs depend upon these enterprises. The Chamber of Commerce provided material that helped us to tackle such questions as: "What would happen to the economy of Fort Smith if the supply of wood should suddenly be cut off?" The destruction of our forests became a matter of grave concern.

As an assignment, I asked the children to talk with a furniture dealer about the items in the store made of wood and to ask questions about the source of the wood, why some items are priced higher than others, how the location of the manufacturer affects price, and the like. Within a few days I had several reports giving precise details on these questions, plus information on dealers' profits, the cost of imported materials, how quality of workmanship affects price, and how discount stores can charge lower prices!

Evaluation

Evaluation was an on-going process, which should be evident from the activities described. By giving assignments that required the children to apply their economic understanding, I was able to evaluate the extent of their learning through direct observation. Anecdotal records were kept, and "feedback" from parents was often obtained. At the close of each activity, I made a chart giving a brief digest of the economic facts and concepts we had studied. In reviewing the chart with the class I was able to determine how well they understood the principles. Whenever they appeared to be confused about something, I made a point to repeat the concepts in the next activity.

Finally, the Primary Test of Economic Understanding was administered as a pre- and posttest. The pretest was given early in the school year. The highest possible score is 32, and my class achieved a mean of 7. (The range was from two to 15.) On the posttest they achieved a mean score of 20—a mean gain of 13 points. (The range was from 10 to 28.) Through the variety of evaluation techniques used it was well established that the children had learned a number of important basic economic concepts. Equally important is the fact that youngsters with varying backgrounds and abilities had worked together harmoniously in studying economic issues which seemed real and important to all of them.

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Kite Day Poppers, Inc.

Third-Grade Economics

Penny M. Fox
Asbell Elementary School, Fayetteville, Arkansas

Background and Goals

After teaching third graders for seven years I began to question the relevancy of my teaching to the needs and experiences of the children in my care. Elementary teachers are faced with an awesome task of including a wide range of subjects in a short teaching day. By attending two economic education workshops and reading literature produced by the Joint Council on Economic Education, I discovered that economics can be a common denominator whereby all areas of the curriculum can be merged and can present a realistic view of life to pupils.

The traditional scope and sequence concentrate upon the family and the neighborhood in the first and second grades, and the community in grade three. At each level, economic concepts can be related to the child's real world. The understandings that are acquired in the first two grades lay the foundation for in-depth comprehension of an everchanging and more complex society—a society in which the pupils will not only be consumers but producers and taxpayers as well.

The pupil population in Asbell School is drawn from a wide range of incomes and socioeconomic backgrounds. I had the children of poultry growers, factory workers and university professors. A few even lacked such conveniences as running water in their homes. My goals were to teach concepts which apply to everyone, regardless of individual differences. Among the economic understandings I wanted to convey were the following:

- We are all consumers.
- Most people can become producers of goods, or services, or both.
- All kinds of workers are important and needed in a community.
- People go into business to make a profit.
- Businesses produce goods and services for the community and, in turn, derive support from the community.
- Banks provide needed services for people and businesses.
- Division of labor and specialization usually result in increased productivity and higher quality goods, but also cause interdependence.
- Individuals can become part owners of businesses by buying stocks which entitle them to shares of the profits.
- In our market system everyone (even children) has a "vote."

The study of economics was on-going throughout the year, culminating in late spring with a month-long project in which the pupils formed a com-

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pany. That project will constitute the essence of this report, but a brief account of the preceding activities is in order. Early in September the students constructed an aquarium and several terrariums as science projects. They observed the interdependence of plant and animal life, and we compared this to the interdependence of people. In studying ecology, the class saw how man changes the environment and what effects this has upon people and other forms of life. A study was made of the sacrifices of natural resources accompanying modern industrialization, and of the resulting advantages and disadvantages of industrial growth. We discussed proposals for airports, shopping centers and industrial parks for an imaginary community and the pupils then voted on whether or not the new facility should be added. If the facility was approved, a model was made of it and it was added to our cardboard city. Each such addition also resulted in more people moving to the area, so squares representing population increases would be added to the model. A real-life issue of this nature was also discussed when the city proposed a bond issue for an airport. It is interesting to note that the children of poultry growers in the area of the proposed airport were very vocal in their opposition because their livelihoods and their homes would be threatened.

As Thanksgiving approached we studied the Pilgrims and the Indians, and compared their lives and economic situations with our modern society. To a considerable extent, instruction was individualized. Challenging projects were prepared for the gifted, who were free then to progress at their own rates in self-directed learning. Meanwhile, peer-tutors and simple programmed lessons were available for slow learners. Note, however, that children interacted on the basis of mutual interests as much as on the basis of ability levels. The use of inquiry, research and problem-solving skills was strongly encouraged. A wide variety of materials was on hand, field trips were taken from time to time, and many resource people were available. For example, one mother visited the class during Dental Health Week and explained the services she provides in her work as a dental assistant. A university professor spent a half-day with us, demonstrating his high-power microscope (a capital item) and explaining the education needed for his profession. A fireman also demonstrated the capital goods he uses, as did a weatherman who showed us weather balloons, weather maps and the like.

The children made booklets in which various concepts were depicted—wants and needs, producers and consumers, and durable and nondurable goods. Bulletin board displays portrayed local community helpers, businesses and specialists at work. Maps were made to show schools, highways, business firms and other economic institutions. Transparencies with overlays depicted the utilization of space in city, county, state and nation. In trips to the telephone company, a soft-drink bottling plant and a dairy, we saw division of labor, mass-production techniques and the factors of production at work. Then, as spring approached, the principal announced the coming of Kite Day. This is an annual event in Asbell School, when all pupils are released from classes for a half day of fun to see who can fly a kite highest and longest.

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Development

As Kite Day neared, we were reading Lawrence Senesh's book *Cities at Work*. The chapter on "The Wants and Needs of a Community" gave us the idea of forming a company to take advantage of the demand for popcorn. Along with two other third-grade classes, we launched a business to be known as "Kite Day Poppers, Inc." Stock was sold at 25¢ per share, and a total of 64 persons became part owners of the corporation. The stockholders elected a president, vice-president, secretary and vice-presidents in charge of sales, production, finance, advertising and internal affairs. Each vice-president formed a committee to help him or her. For example, the finance committee visited a local bank to learn about writing checks, to deposit money, and so on. The advertising committee rented advertising space throughout the school. Of course, there were problems. Would it be better to place an advertising poster in a small spot behind a door at a fee of two cents or on a large bulletin board for 15 cents? Would the librarian really sue the third graders who put a display in the library without her permission? All pupils had jobs to do, and all parts of the curriculum were involved, as money had to be collected and counted, books had to be balanced, letters were written, and art projects were made for advertising purposes. Stockholder meetings were held periodically at which progress reports were made and problems discussed.

The vice-president in charge of production and his committee saw to it that everyone learned about mass production and division of labor. This was done first through a kite-making project in which each child performed a special task—one would draw the kite, another would cut the tail, a third would paste the tail on, etc. An economic term was written on each finished kite, and these were hung from the ceiling to serve both as advertisements and as "flying dictionaries." Hats and aprons needed by the popcorn workers were also made in this way.

The vice-president in charge of internal affairs and his committee were responsible for preventing pollution. They made litter barrels (using ice-cream cartons donated by a local ice-cream parlor), and pasted antipollution slogans on them. It was their duty to clean the popcorn machine as well.

The secretary had to write many letters. Parents were informed of the project, goods were ordered and letters of appreciation were written to those who helped. A maintenance worker who received such a letter after having delivered the popcorn machine was so touched by this that he returned to the room and made a cash donation to the corporation.

Many adjustments had to be made. Kite Day had to be postponed several times because of bad weather. Some of the children wanted to participate in the contest, so rotating schedules were set up whereby those who were producing, bagging and selling the popcorn could be relieved by classmates in order to fly kites. The internal affairs committee kept someone on duty at all times to keep the area clean, while the finance committee collected money. At times, demand exceeded supply and production would have to be increased by engaging children who had not planned on being part of the production process. Business slacked off after three hours of

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production, but 600 boxes of popcorn had been sold. There was just enough left over to take care of a group of hungry Brownies meeting in the school that day, so nothing was wasted.

The finance committee counted our earnings, paid all bills, and deposited the rest in the bank. A dividend of five cents per share was declared. The firm had earned a net profit of $44.55. The shareholders voted to buy three filmstrip hand viewers to donate to the school, and then dissolved the corporation.

Summary and Evaluation

A formal evaluation was made, using a pretest and a posttest. The pupils achieved a mean gain of 20 percent. It was interesting to see their reactions. During the pretest they had seemed serious, confused and perplexed. At the posttesting, however, there was much chuckling over the ridiculously simple questions.

As a fitting and exciting conclusion to our project, a selected group of children related the story of Kite Day Poppers, Inc., on a Little Rock television station. As for me, by including economics in my teaching I had found a way to interweave all the disciplines. There were many unexpected outcomes and benefits. It was clear that the children's ability to make wise economic decisions increased as the year progressed. They showed leadership and ingenuity in their planning, in the delegation of responsibilities, and in operating their firm. They learned to adjust when changing conditions demanded it, they considered the wants and needs of others, and they accepted disappointments gracefully. Conflicts were resolved through the democratic process, and the children showed consideration and respect for all people from all walks of life. They saw that the community depends upon the support and cooperation of all citizens. Many acquired a sense of their own worth as they saw their own contributions to the business venture. They began to understand the workings of the free enterprise system. It had been the desires of the school population as a whole (the consumers) that had determined what they would produce and how much. Children chose their jobs in accordance with their abilities and interests, and were motivated by the opportunity of making a profit. They saw the need for specialization, division of labor and cooperation, and learned to appreciate the interdependence of the family, school, community, state and nation. In short, this experience should provide a firm foundation for the introduction of new economic concepts and the application of those they had learned to increasingly sophisticated situations as they progress to higher educational levels and eventually become more active participants in our economy.

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Come Grow With Us

Teaching Economics in Second Grade

Arlette Miller and Betty Muench

Fair Park Elementary School, Little Rock, Arkansas

Introduction

Our interest in teaching economics began during the 1971-72 school year, when our principal, Mrs. Marie Orrell, encouraged us to include this subject in the curriculum. In the summer of 1972 we attended an economic education workshop at Henderson State College. One of the presentations that most impressed us was a discussion by a banker of the economic development of the State of Arkansas, with an emphasis upon the need for a good highway system and the navigability of the Arkansas River. Before school started in September, we got together and planned our objectives and outlined the year's work.

Our classes are racially balanced, the black children being bused in from other parts of the city. The children range from seven to nine years of age, represent a wide variety of academic abilities, and come from middle and lower socioeconomic families. We decided that the best way to teach economics to these pupils was to incorporate the basic ideas and concepts into every subject in the curriculum. The work was divided into two phases—Phase One would deal with the basic principles and facts that have universal application, and Phase Two would concentrate upon the economic development of our state. Among the specific topics to be included were: scarcity; wants and needs; choice-making; private enterprise; the market economy; specialization and interdependence; the factors of production; supply and demand; the circular flow; the roles of consumers and producers; money and banking; taxes; and transportation. We intended to emphasize that economics is a part of everyone's daily life, and that these concepts in some way affect every individual.

Activities—Phase One

One thing that we all have in common is that we are consumers. Thus, the first topic for discussion was *consuming* and what it means. We talked about the different things we consume in school, and had these illustrated by a bulletin board display. (This was made up of a large picture of a clown holding balloons labelled Crayons, Paper, Pencils, Books and the like.) Throughout the school year, as a concept was developed it would be written on a chart, defined and explained in simple language, and illustrated with pictures. These charts could be referred to again and again as the various concepts applied to different lessons and activities, and they served as motivational devices and good mechanisms for review. The children also drew

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pictures of consumers and consumer goods, and wrote their own definitions and explanations.

The next logical step was to discuss producers, a topic which we related to Labor Day. We distinguished between producers of goods and producers of services, and identified the producers found in the home. The children dictated a story about producers, and drew pictures of their families to show which family members were producers and which were consumers only. To introduce the concepts of specialization and interdependence, we had the principal, the school secretary, the custodian, the librarian, some cafeteria workers and a teacher's aide come to the classroom to explain their jobs and how they work together for the benefit of everyone in the school. The pupils wrote a story about each speaker, and drew pictures to illustrate their jobs. To show that they had grasped the concepts in general, the children cut out pictures of producers and consumers and explained them to the class, distinguishing also between goods and services. We wrote a story about producers, and the pupils identified the work that they themselves do to qualify as producers.

Economic concepts could be found in many of the books that we read. For example, Anne Baldwin's *Sunflowers for Tina* (New York: Four Winds Press, 1970) deals with a little girl in New York City who needs food, clothing and shelter, but also wants a garden. The children were able to identify the characters in the story who produced services, such as the operator of a newspaper stand and the owner of a grocery, the various producers in Tina's family (such as the mother), and the persons who were consumers only (the grandmother, who was too old and ill to be a producer). Books about life in other parts of the world were used to show that basic needs are the same the world over, and that the problem of unlimited wants vs. limited resources is universal. Factors that influence our wants, such as age, size, income and where we live, were also noted. Holidays were also valuable in reinforcing these learnings. At Thanksgiving time we compared the lives of the Indians with our own lives in terms of our needs and wants, and at Christmas we had bulletin board displays of our wants.

The difference between durable and nondurable goods was learned, and this led to an examination of capital goods—goods which do not satisfy consumer wants directly but which are used to produce goods and services that do provide consumer satisfaction. Again, the children cut out pictures that illustrated goods of this type. The other factors of production could now be studied too. We asked the children what they needed to produce a picture. First they listed such things as paper, pencils, crayons and scissors. We asked if these things could create a picture by themselves, and of course they replied "no." Then they saw that they had omitted the vitally important factor of human labor. To convey the idea of the entrepreneur, we discussed the owners of the businesses where their parents worked. One of the pupils' explanations was as follows:

> "Do you know what an Entrepreneur is. If you don't wi'll get to that after I tell you what he does o.k.? First, of all he owners the business. The Entreprencur takes a lots of risks. One of his risks is he might loose the business. And he must make wise chooses."

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The problem of scarcity was explored further during science lessons. In a unit on fuel, the children learned that fuel is used in factories to produce the goods we buy, and that the current energy crisis is affecting all of us. The need for conservation was stressed, and the scarcity of certain human resources (such as medical doctors) was also pointed out. As one small contribution to the conservation of resources, we had the pupils use both sides of the paper for their assignments. In role-playing sessions we had them use play money to make decisions on how to allocate their purchases. This taught them something about the *real cost principle*—if one chooses a given item, the real cost is the sacrifice of some other good or service that could have been obtained with the same money.

Supply and demand entered into our deliberations in a natural way. All had heard about rising food prices and the meat boycott. This enabled us to apply the laws of supply and demand to current situations which the children were themselves experiencing. The spring floods helped to dramatize the problem, for these disasters of course affected supply. We also examined the farmer's costs and saw how his profits might be affected. Young children cannot cope with supply and demand curves, but they can understand the underlying concepts. For example, we made a large wall picture showing four people representing the demand for meat, while only three steaks were shown to represent the available supply. The pupils also brought in newspaper articles about food prices.

Although we did not attempt to teach the children every aspect of our economic system, we did show them that (like other systems) it tries to answer the basic questions of what to produce, how much, how to produce, and for whom. The consumers' role in helping producers to make decisions was stressed, for our dollars act as votes in the market place. Competition in the market was compared with competition in sports so that the concept could be understood at the primary level. We did note also that some property is publicly or collectively owned in our society, although private ownership is the rule.

To understand the market economy one must understand money. The way in which money serves as a medium of exchange, a measure of value, and a store of value was explained and illustrated by the use of large posters, charts and pictures. The forms that money takes in our economy were listed and explained. Young children cannot understand the creation of bank credit, but they can see that checks serve as a medium of exchange. We touched upon the problem of inflation by noting that money is only as good as the things it will buy. Credit was defined, and the pupils discussed the advantages and disadvantages of buying on credit. Our study of the circular flow was started with a little couplet—"Round and round our money goes; and where it goes we would like to know." Simple diagrams were used to show how money goes to a producer and from the producer to the factors in the market as well as to the sellers of consumer goods he purchases, to banks and to government.

Once the pupils saw that some money goes to the government, it was a simple matter to develop charts illustrating the ways in which the government spends its revenues. A large poster was made showing federal expenditures for such things as highways, education, welfare, national defense and

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social security. We also taught them how state and local governments spend money for health, highways, schools, police, firemen and sanitation. The children enjoyed playing the role of teacher and explaining the circular flow to the rest of the class. The idea was extended to the international scene when we discussed trade with other nations. Bartering sessions were held in the classroom to show how difficult it would be to function efficiently without money. We had a guest speaker from a bank and then took a field trip to a bank to reinforce the classroom experiences. Charts were made to illustrate the functions of banks.

The children were introduced to the problem-solving approach. We taught them to define a problem, decide on a goal, seek various ways of achieving the goal, weigh the possible consequences, and choose a solution. The steps for solving problems were listed on a large poster and kept on display.

Activities—Phase Two

Children are interested in transportation facilities, so we decided to concentrate on Little Rock as a distribution center in our study of the state's economic development. We have trucks, railroads, planes, barges and pipelines. The port is a recent development made possible by the new locks and dams that have made the Arkansas River navigable. We built a unit around the movement of goods, applying the economic concepts learned earlier to this topic. Each of the five modes of moving goods was depicted on the bulletin board, with a map of the state in the central position. A set of questions was developed and listed under each of the modes. Some examples are as follows:

- How do farmers use airplanes to help them to produce goods?
- Why is it more costly to move goods by plane?
- Why would a producer ship his goods by train instead of truck?
- What kinds of goods would a producer in Arkansas want to ship by barge?
- Why is trucking sometimes a favored way of moving goods?

The children sought answers by interviewing people and referring to encyclopedias and other printed material, and then gave oral reports on their findings. A field trip to the River Museum also provided interesting information. We arranged a bulletin board display showing the entrepreneur trying to decide which mode of transportation to use. One of the most important outcomes of this phase was the development of a book so that other classes could share what we had learned.

The culminating activity was a play which we wrote and had the children perform for the entire school in an assembly program, and again for the PTA. The pupils were not required to remember every part of the script word-for-word, but were permitted to "ad lib." Their ability to do this was evidence of the extent to which they had learned and understood the economic concepts. Among the characters in the play were consumers, producers, family members, farmers, bankers and entrepreneurs. The topics in the play included needs, prices of various items, resources (natural, human and

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capital), profits, banks, loans and transportation.*

Evaluation

Of course, pupil progress was evaluated in a number of ways. Their written and oral reports, the accuracy with which they illustrated economic concepts by drawing pictures or making charts, and their ability to apply concepts to unfamiliar situations gave us an indication of how much they had learned. For a more formal and objective assessment, we administered a short-answer test made up of 30 items. This was read to the pupils, as we were testing for economic understanding rather than reading ability. They would respond by circling "yes" or "no" on their sheets, which also contained the test items.† Some sample questions are as follows:

- Children can buy more candy with their allowances when candy prices are high. (No.)
- Capital resources are people and land. (No.)
- Prices of goods go up when the supply is low and the demand is high. (Yes.)

One class achieved a median of 23.5 on this test; the other's median was 22. We considered this to be a very satisfactory performance. Indeed, we strongly believe that children in the primary grades, even when they are heterogeneously grouped, can learn many basic economic concepts if those concepts are presented in an interesting way and related to their real life needs and experiences.

APPENDIX TO CHAPTER 1

Good Ideas in Brief: Primary Level

JANE SHANKS of *Pleasantview Elementary School* in *Sauk Rapids, Minnesota,* encouraged her third graders to establish a candle factory in the classroom. Prior to this, the pupils had discussed the items they might be able to produce and had taken a survey to see which products would sell. Studies were made to determine production costs, and a loan was obtained from a local bank. An elected Board of Directors signed for the loan. Safety rules were established (to be enforced by a Safety Engineer), a Sales Department was created, and an assembly line was set up. Three trial assembly lines were placed in operation for one day before the candle-making began, and this enabled the class to detect wasteful and inefficient methods before

*Unfortunately, space does not permit publication of the entire script. This is contained in the original report which may be obtained from the Vernon R. Alden Library, Ohio University, Athens, Ohio.

†The test is similar to the Primary Test of Economic Understanding by Donald Davison and John Kilgore (Iowa City: The University of Iowa, 1971). Information on this test can be obtained from the Joint Council on Economic Education.

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the real work started. Workers were hired, and each pupil became a specialist on the line. Some of the more boring jobs were rotated, and the workers were given breaks periodically. Production costs were computed and prices of the various types of candles were established. Since the Christmas season was approaching, the candles were sold quickly. The class made enough to repay the bank loan (with interest) and realize a good profit.

ANNA ROSE MILLER of *Sutton Elementary School* in *Fort Smith, Arkansas*, capitalized on her second graders' interest in trucks (several of the fathers were truck drivers) to teach economic concepts through a study of transportation. One of the most interesting activities was the sending of a questionnaire to various business firms in the city to determine what transportation facilities they use (and why), how many people they employ, how they expect to be affected by the energy crisis, what services they obtain from the community, how they are affected by government policies, and so on. Through this project the children learned how their city depends upon transportation (trucks, in particular), how transportation contributes to the economy in general, and how the circular flow functions in our market economy.

MARILYN SPEARMAN of the *Trusty Grade School* in *Fort Smith, Arkansas*, had her second graders write a booklet entitled "The Story of Susan Brady and Her Family." The story includes numerous economic concepts. Specialization is illustrated by the various jobs done by members of the family. The factors of production are dealt with in a description of the bread factory in which Susan's father is employed. The role of banks is explained when the factory owner has to borrow money for a new building. The circular flow is depicted when Susan and her father discuss what happens to the 39 cents used to buy a loaf of bread.

ELEANOR COLEMAN of *Gillam Elementary School* in *Little Rock, Arkansas*, not only taught economics to her second graders but developed a way of reaching the entire school, which has a population of about 160 pupils. With the approval of the other teachers, she formed groups of five students from each class and met with each group at weekly half-hour sessions. Using a variety of interesting methods (such as role-playing, puppet shows, bulletin board displays, and songs and poems), she taught each group some basic economic terms and concepts. The groups would then go back and teach what they had learned to their own classmates. The groups would meet together to hear guest speakers, view films and filmstrips, and write skits and plays. Through this "multiplier" approach, the entire student body learned about scarcity, productive resources, opportunity cost, specialization, and government's role in the economy. One of the most exciting projects involved a study of the operation of the school and of the problems of school finance. One very practical result of this project was

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that the children stopped wasting paper towels, art supplies and other materials, and took better care of books, playground equipment, classroom furniture, and visual aids, for they realized how much their parents were paying (through their taxes) for these items. They also studied the impact of inflation on the school and its programs.

JUDITH BACH of *Valley Elementary School* in *Lucasville, Ohio,* incorporated economics into her remedial reading lessons for second graders. Since children are most familiar with their own households, she related such terms as goods, services, consumer, producer, specialization and interdependence to the family. The pupils studied their parents' occupations, engaged in role-playing, made posters, cut out pictures representing the economic concepts, and went on a field trip. They interviewed various specialists in the school itself, and noted the way in which people depend upon one another. The major means of evaluation was to have each child role-play the parent's job and answer questions such as: "Are you producing goods or performing a service?"

JANICE WAHL and CAROL WILD, working as a team at *Woodrow Wilson School* in *Fargo, North Dakota,* had their first and second graders become "families" made up of mothers, fathers and children. (Reflecting the realities of life in the area, a few of these "households" were headed by mothers without a husband present.) The "parents" chose occupations and were assigned monthly take-home pay accordingly. Each family received a checkbook and each deposited some money in a "bank." Then "bills" started to pour in! Bills were received for such things as furniture, auto payments, dental work, clothing, insurance, magazine subscriptions, telephone calls, medical care, plumbing repairs, dry cleaning and TV repairs. Visits were made to such businesses as auto dealers and supermarkets where the children, acting very much like real families in similar situations, would attempt to decide what to buy, get into family arguments, and try to make their purchases fit their budgets. Children from the fifth and sixth grades helped the pupils to do the accounting when they paid their bills and wrote checks. In classroom discussions, the children debated such things as whether or not a telephone was a necessity and heard guest speakers discuss housing costs and the like. When the two-week unit ended, some of the families had money left over and others had spent more than they earned. In any event, all had a much more realistic picture of what it costs to provide a family with its needs and wants.

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CHAPTER TWO

An Economics Headstart

Fourth-Grade Activities

June Jennings
First Ward Elementary School, Pine Bluff, Arkansas

Background and Goals

Parents who work at menial jobs usually dream that their children will succeed in obtaining higher-level employment, and that if they fail to realize their initial objectives they will try again. With this in mind, I began to plan the activities for the school year that could be used with my 24 fourth-graders. There were 17 black and seven white pupils in my self-contained classroom, and 15 of these youngsters were from homes in which the annual family income was below $2000.

Our school is located in the downtown area of Pine Bluff, and most of the families it serves are low-income residents. The school's population is 60 percent black, and many white parents have moved to the suburbs to avoid the integration of the community. At our school we feel that economics is an important part of the curriculum, and that this subject can help the pupils to cope with the problems of life and to prepare for a better future. As I worked with these students I could see a need for more depth in their economics activities and for greater motivation. With the encouragement and cooperation of the principal, I began to explore the idea of setting up learning centers in the classroom—centers that would provide the children with an opportunity to express themselves and to seek solutions to their problems. In order to help individuals to acquire a basic understanding of themselves and their needs, and to see that they relate to the total economy of which they are a part, an economics center was included among the other learning stations in the classroom. The general objective was to enhance pupil motivation and help these young people to make wise decisions concerning economic issues which affect them personally.

Some of the specific goals were—

- To develop learning experiences which would involve the students actively in the processes which are useful in making decisions in the marketplace.
- To learn to apply the steps of economic analysis in solving personal

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economic problems.

- To help the pupils to make intelligent decisions regarding their future occupations.
- To understand such economic concepts as scarcity, productive resources, wants, needs, goods, services, interdependence, taxation, banking and the market, and to see how those concepts affect them personally.

Activities

The activities can be divided generally into two types—individual and group. In group activities we stressed concepts which are basic to economic understanding in general and which would apply to any individual problem. The individual projects, of course, enabled the children to pursue their own interests and use economic analysis and knowledge in helping to solve personal problems. The guide *Economic Education for Arkansas Elementary Schools* was used as the basic source document, with many supplementary materials and audiovisual aids being employed as well. Only a sample of the individual projects will be described in this report.

Robert's New Bike

Robert came into my classroom as a transfer student from another school in the district. His mother was head of the household and was receiving welfare payments. Robert had been placed on probation four times for bicycle theft, for he could not understand why other children could have bikes while he could not. More than anything else, he wanted his own bicycle.

First, I asked Robert to develop a family budget based upon the amount of his mother's monthly check. Then he and I discussed the difficulty of purchasing all our wants with our limited financial resources, and this led to an understanding that some families have more than others because their income is often commensurate with the services they render. Next, we began to explore ways by which Robert could have his own bike. Perhaps he could build one himself. We decided to bring to the classroom all the old bicycle parts we could find. The productive resources used in manufacturing bicycles were identified, and this led to a general consideration of how people use available resources to produce goods. Robert was excited by this activity, and enjoyed doing it. Nevertheless, he would not give up the idea of having a new bike.

Several alternatives were discussed, and we finally settled upon the idea of helping Robert to earn enough money to buy a new bicycle. Finding that there was a demand for returnable pop bottles, we suggested that Robert collect them and sell them. The money was deposited in a special fund, but candy bars and soda began to have more immediate appeal. Robert's fund was growing too slowly, and I seized upon this chance to teach him the opportunity cost principle—the *real cost* of the candy and soda pop was the bicycle he was sacrificing.

It became evident that we were expecting too much of Robert. There are many sophisticated adults in our society who refuse to "defer consumption," so how could we expect a fourth-grader to resist the temptation to

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buy the things he wanted for immediate satisfaction? Our economic system provides the means by which responsible people can satisfy their wants today and defer payment. Why not teach this to Robert and hope that he would acquire a sense of responsibility as well as learn more about the American economy?

The class had demonstrated its willingness to help. They had held a rummage sale to raise money for Robert. Money he had made from the pop bottles was used to purchase an ad in a local newspaper. During a class meeting we had reviewed the concepts of consumer, demand, goods and competition, applying them to the rummage sale. When we found that a five-dollar permit was necessary, we discussed the various types of taxes and the services provided in return by the city government. The sale helped, for we earned $18.00 after expenses, but it was not enough. Robert was pleased with the result, and accepted the class suggestion that he deposit the money in a bank and earn interest. Nevertheless, the principal felt that Robert had waited long enough, so he decided to lend him the money for the new bike. A formal note was signed by Robert, promising to repay with interest. He proved to be a good credit risk. We engaged in "comparative shopping" to get the best bike for the money available, and Robert was overjoyed. He continued to pick up pop bottles, and he found a buyer for the bike he had constructed in the classroom. In due course, he paid off the loan.

Michael's Advertising Agency

Michael, a bright student and a very good artist, became interested in advertising as a result of the rummage sale. He and I paid a visit to an advertising agency, where we learned that businessmen depend upon advertising to market their goods and services. Competition is keen, however, so one must keep up-to-date with all the recent advertising media and techniques and try to develop a variety of appealing promotional ideas. At first hand, Michael saw how interdependence applies in the advertising business, as various specialists work together to develop attractive advertisements. When Michael discussed his visit with the owner of a local grocery, this businessman asked Michael to prepare an ad for him. The ad was printed in the *Pine Bluff News*, and the class toured the newspaper plant where they saw Michael's ad coming off the press. We were thrilled when a New York advertising agency saw the ad and wrote the grocer about it.

During a class meeting we discussed the way in which businesses compete for the "dollar vote," and how advertising plays a role in our market system. We saw how the "dollar vote" helps to decide what, how and for whom goods will be produced, and how it helps to allocate productive resources. Advertising was also examined from the consumer's point of view, for it was noted that ads must be examined critically. As a case in point, we considered the advertisements for toys which appear on the Saturday morning cartoon programs. Michael used our classroom camera to photograph various examples of advertising (such as signs and billboards) in the area so that the rest of the class could see the different kinds of media in existence.

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A Movie on Interdependence

We had an inexpensive movie camera in the classroom, and Michael and Keith decided to use it to produce a film about interdependence in Pine Bluff. A tape was also made to accompany the film. A portion of the script is presented below to show what the film contained.

"I live in Pine Bluff. I want to tell you about my town. There are 57,689 people who live here. Each one depends on others. Some people work in factories. These factories produce things for all of us. The factory workers use natural resources to produce goods. They depend on people who own land for natural resources. In Pine Bluff factories depend upon the farmers for trees. The tree farmers depend upon truck drivers to carry the trees to the factory. The factory depends upon the railroad people to take their product to other towns. The railroad people depend upon the factory to produce paper and other products for them. The bank depends upon the factory workers to put their money in accounts. The businessmen borrow money to operate their businesses. The factory workers depend on the businessmen to sell them goods. The businessmen depend on the factory workers to make and buy goods. The city government depends upon the workers and the businessmen to pay taxes. The workers and the businessmen depend on the city to give them a library, police and firemen. All of them depend on the schools to teach their children. The people who work in the school depend on the workers to pay taxes and produce goods and services for them. No person in Pine Bluff can do everything. Each person depends on others."

Future Kindergarten Teachers

Throughout the school year, our fourth graders spent one hour each week playing with the kindergarten children. Beverly, Cindy, Tammy, Regina and Wanda had expressed interest in becoming kindergarten teachers, and we discussed the fact that teachers produce a specialized service and must have special training. A trip was arranged to the University of Arkansas, where the girls discussed with two professors the education needed to become a kindergarten teacher. They also interviewed the kindergarten teachers in our First Ward school. They found that the supply of teachers is greater than the demand for them and thus their salaries are not as high as they would like them to be.

Later the girls wrote to our superintendent and asked for an interview. He responded by sending them a simple job application and suggested a convenient time for a meeting. During the interview, the superintendent, Dr. Roy Scoggins, explained that teacher salaries are paid from tax money, and that the parents (in effect) decide what quality of schools they want and the amount of money they are willing to pay for them when they cast their ballots. Finding our pupils to be worthy, Dr. Scoggins presented each of the girls with a "teaching contract" to work in the kindergarten classes for an hour a day. Undoubtedly, very few children have such an opportunity to test their career choices this early in their lives.

Mary's Pencil and Paper Store

Mary wanted to open a business in our classroom. She conducted

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a "market survey" and found that there was a demand for paper and pencils. She purchased these materials from a wholesale company. Finding that she would be in competition with several stores in the neighborhood, Mary decided to have Michael conduct an advertising campaign for her. Aware of the law of supply and demand, Mary raised her prices when the sales of her product were high. But the other pupils had learned about this principle too. They were outraged by Mary's action and wanted me to use my authority as a teacher to set a ceiling on her prices. I refused, and asked them to explain how consumers today are fighting high meat prices. They had heard about the nationwide meat boycott, so they decided to boycott Mary's products. Mary was forced to lower her prices.

The Nurses

Geraldine, Jurles and Joyce were interested in nursing as a future occupation. Our school nurse, Mrs. Larimer, explained the special training that would be needed, and permitted them to observe her at work in the school health room. They also visited the county hospital, the county health department and a doctor's office. In the classroom we discussed the way in which nurses provide a service and how technology has helped to make the medical professions more efficient. The girls were then assigned to be "nurses aides" in the school health room.

The Learning Center

My fear that the economics learning center would not be popular proved to be unfounded. Indeed, it became a focal point for discussion, activity and controversy. I prepared a set of behavioral objectives which contained numerous activities and provided means of evaluating pupil progress in achieving their goals. Working individually or in small groups, the pupils did such things as write stories about their wants and needs (using mail order catalogs for inspiration), plan budgets around the family paycheck, develop ideas for controlling pollution, prepare posters illustrating productive resources, make charts showing how the government uses tax revenues, write a play indicating what would happen if everyone decided to stop working, and give accounts of the effect of flood damage on our natural resources. They also viewed filmstrips, heard guest speakers, interviewed resource persons, and planted trees. As a culminating activity, we decided to share our learnings with others by preparing and displaying posters. Poster-making had been a popular activity throughout, and we prepared an exhibit of our work and invited parents and other classes to view it.

Evaluation

Learning involves much more than having several students do the same thing at the same time. Pupils can assume a considerable amount of responsibility if they are given a framework within which to plan and to work. The learning center provided this framework. Usually we like to do what we can do fairly well, and we tend to avoid tasks in which we are not proficient. The learning center encouraged student participation in a wide variety of projects, but did not requre that an individual be an active par-

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ticipant in every activity at all times. The children could become participants while pursuing their individual interests. The behavioral objectives enabled me to evaluate each pupil on his or her own terms, and to measure progress in accordance with individual abilities and goals. Thus, evaluation

DALE BUMPERS
GOVERNOR

STATE OF ARKANSAS
OFFICE OF THE GOVERNOR
LITTLE ROCK

May 29, 1973

Miss Cynthia Stokes
First Ward School
1300 East 5th Street
Pine Bluff, Arkansas 71601

Dear Miss Stokes:

This will acknowledge your letter regarding your studies of economics and the utilization of taxes in our state.

Taxes are, in large part, what make your city, state and country go. State taxes contribute to the development and upkeep of our universities and colleges, build and repair our highways, finance the operation of our state government, maintain our state parks and lakes and last, but not least, pay my salary. County and city taxes finance the public schools, maintain county and city streets, pay for services such as garbage collecting, park improvements, health programs, fire and police protection.

I hope this information will be helpful to you, and thank you for your support of my efforts.

Kindest regards.

Sincerely,

Dale Bumpers

Dale Bumpers

DB:imd

June Jennings' fourth graders in the First Ward Elementary School, Pine Bluff, Arkansas, have learned to use "primary sources" in their research. In this letter, the State Governor himself provides information to a pupil on taxes.

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was not an end-of-semester event, but a continuing process. Furthermore, evaluation was a two-way process in which the learning center itself was subject to review and modification when it did not seem to be meeting our needs. The concept of learning centers was new to the teachers in our school, but the idea was met with enthusiasm. Each classroom took on a different look, and a variety of centers emerged throughout the school. The true test of their effectiveness lies in the fact that children who had rarely experienced success in an academic setting were able to identify personal goals important to them, to learn a procedure for approaching problems, and to know the joy of achieving one's aims through one's own efforts.

We Learn About Our Community as Mini-Apprentices

Economics in Grades Five and Six

Helen E. Jones
Shinnston Elementary School, Shinnston, Virginia

Introduction

Each year thousands of youngsters graduate from high school and move out into the world of business, a world in which many of them are total strangers. For a long time I have felt a need for more career education—not just vocational training in high school—in which children of elementary school age become acquainted with the problems of choosing careers and obtain first-hand experience in the business community.

The activities described in this report represent only one unit of many in which economic concepts were taught. Economics is integrated in the social studies program throughout the school year wherever it best serves to illuminate other subjects. Before getting to this unit, then, the class had studied such topics as Early Man and the Growth of Societies, The Election of 1972, The Growth of Governments, Trade and Interdependence, Communism, and Propaganda and Advertising. Economic principles had been included at appropriate points, so I could assume that some of the basic concepts had been learned and were understood. The unit reported here was a three-stage experience involving (I) classroom preparation, (II) apprentice-

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ship, and (III) classroom application and evaluation. Each stage is described in detail in the next section.

Procedures

The goals for Stage I were to have the class learn about subsistence, traditional, command and market economies; to learn to analyze and evaluate various economic systems in terms of their strengths and weaknesses; and to develop problem-solving skills. In addition to having the pupils read textbooks and other printed material, I prepared a number of "handouts" for student use. The first "handout" defined economics and the traditional, subsistence, command and market economies. Then it presented several stories describing an economic situation in Russia, India, Spain or the United States. The pupils were to read each story and decide which country and which economic system it illustrated. The following is an example of a story and the related questions.

> Mr. Y is boiling over! The cracker company for which he works as sales manager has just been "outfoxed" by Standard Biscuit Co. Mr. Y's polka-dot design for an animal cracker box, while cute, is not selling nearly as well as the box designed by Standard. The Standard box is cone-shaped, and while the pointed end is empty of crackers, it *looks* larger than the polka-dot box and is selling better. "The public is being fooled!" shouts Mr. Y. "There ought to be a law against it. It just isn't fair!"
>
> 1. Do you think there ought to be a law against cone-shaped boxes? Why? Or why not?
> 2. What kind of economy does this country have? Explain your answer.
> 3. How would you try to solve Mr. Y's problem?

The purpose of such exercises, of course, was to see whether or not the children really understood the definitions, to determine whether or not they could apply what they had learned, to enable them to express their own opinions, and to get them started on the problem-solving approach. After they had completed work on each of the stories, we discussed the countries and economic systems they illustrated and then turned to the advantages and disadvantages of each. This was not an effort to force the students to accept one system as "best," but to encourage thought and analysis. They were presented with examples of countries having different problems and different levels of economic development, asked to state which system might work best in each case (as in the case of Nicaragua after thousands of people had been killed and property destroyed by a natural disaster), and to explain their decisions.

Another "handout" was entitled "Change vs. Tradition in Saudi Arabia." Written to arouse student interest, the first few sentences were as follows:

> "Do not listen to your brother. The government has opened 62 schools for girls and it wants you to learn. Go to the senior member of your

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family and tell him it is your right to go to school." This was a woman's voice. It reached far into the airwaves over the hot desert of Saudi Arabia. Camel-riding Bedouins, listening on transistor radios, were shocked. The female radio announcer was answering a letter written by a girl whose brother had told her she could not go to school! He said that education was only for men. The radio announcer's advice went against everything passed down to Saudi Arabians since ancient times. The stern religious laws of the desert Moslems told the people exactly how to live.

The paper then went on to show how ancient customs affect commerce and economic development in Arabia. The clash between the new and the old was set forth in dramatic terms, the impact of oil was briefly described, and the attempts of foreigners (such as the late Egyptian leader Nasser) to influence Saudi Arabians were mentioned. After reading the "handout" the children were asked to respond to such questions as—

- How do religious beliefs sometimes interfere with business?
- Why do you think Nasser was so interested in the poor people of Arabia?
- What are some things that will have to change before Saudi Arabia can really be a modern country?

Several of the "handouts" were case studies. In one, the pupils were to pretend to be officials of the U.S. Agency for International Development studying a request from Burundi for a loan of $200 million to be used for a dam and power project. They were given various facts about the country —per capita income, average daily consumption of calories (as compared with that of the U.S.), the government's problems in obtaining tax revenues, lack of adequate savings for investment, insufficient earnings from exports, low level of education, lack of infrastructure (such as shortage of paved roads), low levels of living, and the like. Working in small groups, the pupils were to decide whether or not to grant the loan, considering such things as the greatest needs of the people, whether or not the dam would meet these needs, the stability of the government, and whether some other means of assistance might be more practical.

Too often, important terms are used without being defined, and statistics are misused or misinterpreted.* Another case study was designed to teach the children that one should give careful thought to what key terms mean and to how figures are being used. They were given the definition of poverty as it was set forth during the Johnson Administration (with $3,000 being the poverty line for a family of four—a figure that has risen steadily ever since), and then presented with brief descriptions of the financial circumstances of four different households. According to the official definition of poverty, each of the households would be considered "poor." There was great variation in their needs, wants and assets, however, and the pupils were

* For an excellent discussion of this problem, see Stephen K. Campbell, *Flaws and Fallacies in Statistical Thinking* (Englewood Cliffs, N.J.: Prentice-Hall, 1974), especially pages 27-28, regarding living standards.—*The Editor.*

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asked questions like the following:

- According to President Johnson's definition, all of these people are living on a poverty income. Which do you consider to be "poor"?
- A person in Burundi making $100 a year may be considered rich. In America, such an income would be at the starvation level. Explain the difference.
- Is "poverty" the same for each person? Could the definition of poverty be a *value judgment*?
- Do you think it would be a good idea if everyone in the country were given the same income (say, $6,000 a year)? What might be some of the results?

The third case study described a situation in which a relatively small grocery store is in competition with a large supermarket. The larger firm's ability to afford newspaper ads, to buy produce at lower prices, and to raise capital by selling stock was discussed, along with the role of profit in both types of firm. The ensuing discussion questions asked the students to explain why small stores are giving way to large chains, who benefits from competition, what the small firm might do to stay in business, to what extent government should control business, and whether or not the market system exemplified by the case study would be suitable for a one-crop "banana republic."

To summarize what they had learned thus far, and to apply their knowledge to new situations, the students were required to select one country for study, and to do research on that country's economic system, its trade relations, its economic development, etc. Maps were used, and the relationship between geographic aspects and economic activities was to be identified. For instance, one assignment called for them to make a map of the United States, showing our most important trading cities and noting the relationship between their locations and their commercial status. A "paper and pencil" test was administered to provide me with an objective indicator of student learning. One set of questions required the pupils to match economic terms (exports, imports, profit, supply and demand, for example) with statements to which each term would apply. A second set consisted of a list of one-sentence descriptions of an economic situation ("Government controls all business," for example), and the children were required to tell whether this typified a subsistence, traditional, command or market economy. The final set was made up of essay-type questions, such as "Write a paragraph explaining in detail why people in some parts of the world still have a subsistence economy." Now we were ready for Stage II of our unit.

The specific goals for this part were to provide the pupils with an understanding of how a business is established, how the profit motive works, what problems businesses have, the requirements for obtaining a job, and how individual firms fit into the total economic picture of the community. I wrote letters to business people in our town, explaining the purpose of our unit and listing the information we hoped to derive by having the pupils become personally involved in their firms. Every day after school I would take small groups of children downtown to talk with the merchants who had received the letters. In nearly every case we were enthusiastically wel-

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comed. Two children were assigned to each participating firm. Some worked with government agencies.

After I had introduced the pupils to the business people, they would get together and agree upon a schedule of days and hours when the children would be present. Many of our business "partners" were exceptionally enthusiastic and helpful. One permitted the pupils to wait on customers, ring up purchases, put merchandise on the shelves, and check invoices on shipments. He even took them with him when he made deliveries. His rapport with the youngsters did not prevent him from correcting them, however. One day when one of the girls began giggling in the presence of customers he took her aside and sternly warned her that such behavior was not permitted on the part of employees and that customers were always to be treated with courtesy. Fortunately, there were few problems, and the merchants often expressed amazement at the way in which the students were eager to work and to learn. Some of the business people became so interested in their "apprentices" that they determined to follow their progress in the future.

Many of the business people did far more than we had expected of them. The executive vice-president of our local bank spent hours teaching the children to run the copy machine, make out deposit tickets, count vault cash, and so on. They could not actually do the banking jobs, but they watched while loan applications were processed and observed tellers at work. The police chief patiently taught his charges how to operate the police radio, and the city clerk actually took the pupils to a meeting of the City Council. During this stage, our "camera crew" busily photographed the children at work.

Stage III involved classroom "debriefing" and evaluation. Each pupil team gave the class a report on their experiences—what they liked or disliked about their jobs, what they had learned, where and how goods were obtained, how prices were established, how products were marketed, how employee wages were set, how each job served the community, and how many families in the area depend upon each business for their livelihood. They were also expected to explain the qualities that had helped to make the merchant a success in business, what factors a business person should look for in an employee, and why some workers were particularly good at their jobs. The formal examination for this stage of the unit included the following items:

- Explain supply and demand, using the business in which you worked as an example.
- List the things that would be considered the merchant's *investment* in the business in which you worked.
- What are some of the problems that the merchants in our town have?
- If someone wanted to start a new business, how might he or she raise capital?
- How does private ownership differ from state ownership? (Use our merchants as examples of private ownership.)
- How is competition good for the consumer? Is it good or bad for the business person? Explain your answer.

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- In what way is the merchant a supplier? In what way is he or she a consumer?

Working in groups of five, the students did the following assignment:

Choosing a Business

Think about our town. Consider its location, population and existing businesses. Then decide upon a business or industry you think would be needed in our community. Answer the following questions:

1. Is the product one that will sell well?
2. Are raw materials close at hand? How will we get them?
3. What kind of power will be needed, and how will we get it?
4. How could we raise the money to start the firm?
5. Where can we find people to work in this business?
6. How will we get our goods to market?

The pupils also wrote papers describing their work experiences. For example, a paper on the Bank of Shinnston explained the qualifications needed to be an employee or official of the bank, briefly traced the history of banking in the town, gave detailed descriptions of the roles of various employees, discussed some of the bank's problems (such as people who write bad checks), and outlined the services performed by the bank. Other reports dealt with a dress shop, a dairy mart, a grocery, a lumber yard, a drug store, a funeral home, the mayor's office, the police department, an industrial supply firm and a real estate agency.

The quality of these papers, the classroom reports and the results of the written tests all indicated that the goals of the unit were being achieved. Equally important, however, was the evidence that the students had learned to employ the inquiry and problem-solving method, that they had seen the importance of working together, and that they acquired an understanding of how economic analysis can be used in our everyday lives. They saw how their own community and the institutions within it relate to the economy as a whole, and they were beginning to think seriously about their own future roles in that economy.

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Our City — Lincoln, Nebraska

A Multidisciplinary Unit for Fifth Grade

Helen Dot Holmes

Calvert Elementary School, Lincoln, Nebraska

Background and Goals

Working in a team of five teachers with 150 fifth-grade students, I was given a class of 39 pupils who had achieved high scores on language skills tests. The hour each day that I spent with these "self-starters" was a delight, for it was an opportunity to engage in mind-expanding, enriching and challenging studies with gifted youngsters. We became acquainted through a four-week unit in which they shared their special interests through oral and written reports. I found one common deficiency in their backgrounds—they had had no instruction in economics. Therefore, I felt that this would be a fresh and challenging base which could be used to provide them with new understandings and concepts. (Let me emphasize, however, that it is *not* necessary to have above-average or bright students to study economics. I have found in the past that average and below-average achievers gain much from economics units. Other elementary teachers have similar experiences.)

I chose a unit on "Our City of Lincoln" for multidisciplinary studies including economics, history, political science, geography and sociology. Values would also be an integral part of the experience. What better way is there to discover life, with its many facets and problems, than to examine the everyday activities of people we know in a setting that is familiar? Tie the unknown to the known for meaningful learning based upon the children's experiences and interests.

Among the goals was the objective of helping the students to understand economic concepts relating to scarcity, division of labor, specialization, the role of banks, consumer spending and saving, the economic role of cities, government services, taxes, competition, the factors of production (labor, capital and land), production costs, prices, profits and organized labor. Another aim was to have the children acquire attitudes conducive to cooperation among people in order to be more efficient in reaching common goals, to see the need for fairness in business practices, to develop the desire to contribute to one's community, and to enhance the formation of values. It was also hoped that the unit would help them to develop skills in organizing information, using the problem-solving and inquiry approach, holding discussions and debates, conducting interviews, reading critically to detect evidence of bias and to distinguish between fact and opinion, recognizing the propaganda devices in advertising and elsewhere, taking accurate notes, and using and interpreting graphs, maps and political cartoons.

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Procedures

My introductory lessons involved inquiry and concept development. A primary question for pupil consideration was: "What do cities do for people?" They had already had map exercises in which they had formed hypotheses on the rationale for the locations of cities, considering such things as land forms, rainfall, vegetation, lakes and rivers. We viewed a film entitled "Why We Have Taxes: The Town That Had No Policeman" and a filmstrip, "Here is the City." Following these, we discussed city services and how we pay for them. Topics for debate were chosen, after the children had discussed the issues at home (thus involving the family as a source of reference). One issue was whether or not Lincoln should retain the code which states that no building can be taller than the state capitol. Another issue, of great personal interest to the children, was whether or not city taxes should be used to build a swimming pool in the northeast section of town. (Feelings ran high, because our school is in the southeast section, far from the proposed site.) After these introductory activities, we planned together for the development of the unit. Among the topics chosen for study were History and Facts About Lincoln, Tax-Supported Services, and Private Industries. We also decided to prepare a glossary of terms. Each child was expected to do research, and to record facts and statistics in notebooks. One student did such a thorough study of our history that he was asked to record his report on tape so that others could use it at the listening center.

Using pamphlets provided by the Chamber of Commerce, each pupil listed tax-supported city services. A comprehensive list was then compiled and used throughout the unit. A police officer served as guest speaker to explain how the police department is financed. On a field trip to the Underground Civil Defense Center we saw how government plans for continuing its operations and services during natural disasters and in case of war. This was followed by group work, in which five or six children would employ the problem-solving approach in seeking solutions to various current issues. For example, one problem was presented as follows:

> "Many people in the north and west parts of town are complaining bitterly about bad odors from the city sewage treatment plant. There is no money put aside from taxes to build an expensive new plant. What should be done, and how soon?"

Other problems involved the possibility of a strike by city firemen, pollution of the water supply, and the destruction of housing occupied by minority groups to make way for new university buildings. All were highly controversial, and all called for the application of economic analysis.

There were more field trips also. We visited a tax-supported art gallery and, during law week, the entire team of five teachers with their 150 students visited the courts and the police department. (The places visited on the trips were those receiving the largest number of votes by the pupils. They had been given a list of possible places and were told to indicate their first, second and third choices.)

Each child was required to do research on some city service or agency, such as the health department, recreation and parks, water supply and

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sewers. They were encouraged to interview resource persons as well as to use current newspapers and other printed material. In discussions of the pupil's findings we probed into the nature of natural monopolies (such as public utilities), housing problems and poverty. One group of children voluntarily remained after school on three afternoons to play the simulation game "Ghetto." After the last session, the players explained their roles and their experiences to the rest of the class and responded to questions from the nonparticipants.

Before beginning the study of private enterprise in the city, I felt that the children needed a working vocabulary of economic terms. A series of sound filmstrips ("Fundamentals of Economics," by Eye Gate House, Inc.) was most helpful in explaining such basic concepts as supply and demand, capital goods, consumers, producers, specialization, banking, scarcity, labor unions, and the like. Also, I prepared some transparencies of some cartoons and some characters from literature which could be used in discussing economic terms. Some typical discussion questions were: Was Bo-Peep providing a good or a service? Were the children who lived in the shoe producers or consumers? Some popular comic strips served to arouse interest. For example, in one Sunday newspaper, the syndicated comic strip "Nancy" dealt with a situation in which Nancy and her friend discuss ways of earning money. She rejects his suggestion that she try selling magazines or cookies because "Too many kids are doing that." Finally, she agrees that she should go into a business where there is little competition. In an amusing climax, she is shown trying to sell ice cold lemonade during a heavy snow storm. The children enjoyed discussing this example of competition and the role of consumer demand.

Following this introduction to the use of cartoons, the pupils were asked to draw some of their own. We began by having each student draw a word from a hat and proceed to illustrate it. In various humorous ways, they depicted government services, banks, loans, collateral, mortgages and many other key terms.

Before assigning individual research on private businesses, I felt that we should trace the production of one item from start to finish. Nebraska is a beef state, so we chose this product. Furthermore, the public explosion over the high price of meat had begun at about this time, so there was an abundance of information on both the consumer and producer sides of the issue. We made a chart entitled "The Long, Long Trail to Hamburger" in which we started with the calf and ended with the hamburger on a bun in the school lunchroom. People in the beef industry were interviewed, and a young farmer visited the classroom as a guest speaker and resource person. He outlined his costs, including the price of calves, feed for several months, payments for trucking, and various commissions. A salesman who deals in wholesale meat explained the steps from the auctioneer to the packing plant to the school cafeteria. He answered many questions on costs, labor and pricing problems.

As each child (working alone or with a partner) began research on a Lincoln business, I obtained permission for them to use class time to interview business people. This was excellent motivation, and many parents volunteered to drive the children to their interviews. They then shared their

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information with others studying similar firms, and made group reports to the entire class. Some of these were taped for use in the listening center. (As part of this activity, the children identified their own strengths and weaknesses in doing research, organizing data and reporting information.)

Finally, they were ready to form businesses of their own. We set up two companies to compete with one another in producing and selling pinwheels. As part of their preparation, they viewed *The New York Times* filmstrip "Youthful Consumers" and filled out questionnaires about their own buying habits. In this activity they noted the diversity of their spending but also saw patterns in it. This gave them an idea about the things producers must take into consideration when doing market research. I brought in four pinwheels, one of which was commercially produced and three of which I had made. The pupils examined them and noted how and why they differed. They sought answers to the following questions:

- What market is the pinwheel producer trying to reach?
- What competition exists? How do producers meet the competition?
- How can the product be improved?
- How is the price determined? What price should be charged?

On the basis of the ensuing discussions, it was decided that we would aim at younger buyers in the primary school, and that safety and durability would be stressed so that parents would be interested in the product as well. Probable costs of production were estimated, and it was concluded that we could make the pinwheels in the time available, that the costs would be relatively low, and that there would be a ready market for the output.

Shares of stock were sold (at five cents per share) in each firm, but no individual would be allowed to own more than ten shares. Boards of directors were elected and executive positions were filled. Pupils bargained for various jobs. Each worker was to own at least one share of stock. Decisions had to be made on how to produce the product (establishing assembly lines and training specialized workers), who would sell the stock, where they could find materials at the lowest cost, how much money capital to raise, and the like. I informed each company that they would have to pay rent for the use of the room and that they would be charged for using such capital items as desks, chairs and scissors.

The company presidents and treasurers were delegated to buy supplies. During the first day of operation it became painfully clear that the workers had not been adequately trained. It was bedlam! Materials were wasted and foremen failed to detect defective products. The Windmill Company had purchased wooden dowels for handles and expensive yarn for decoration, hoping to make an attractive pinwheel that would outsell the Twheeler Company's product and thus earn more than enough to cover the additional cost. They discovered, however, that the wheels would not turn unless they put beads next to the wooden handle. Furthermore, the large nails being used to hold the paper pinwheels in place often caused the wood to split. Only four usable pinwheels were produced on that first day by the Windmill Company. Twheeler, on the other hand, using plastic straws for handles and stiff plastic instead of paper for the wheels, produced 23 items. The lessons that were learned on this first hectic day are obvious!

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"Government" had to step in on the second day, as I handed each company president an official notice saying:

> WARNING! Government serves warning that the NOISE POLLUTION has passed legal limits. Anyone who violates the sound limits will be fined. Company to pay 1¢ for each violation.

This worked like a charm, and we had a quiet and more efficient production session. The Windmill Company held an evaluation session and changed their design and their production process. They decided to make two different sizes, to use beads so that the wheels would spin, and to add a step in the assembly line whereby workers would make holes in the handles to avoid the wood-splitting problem. Twheeler made both paper and plastic wheels. Now Windmill began to have labor problems, as the workers complained that management ignored their ideas. They demanded a private session for an exchange of views, met in the classroom during the lunch period, and reached an agreement.

The third and last production session was used to make by-products from the waste material. Such items as bookmarks, hair ribbons (from the yarn), and tiny pinwheels were manufactured. As a result of the labor-management session at Windmill, that firm also began using pencils for handles so that small pinwheels could be attached to the erasers. This was designed to appeal to the "older" market of fifth and sixth graders. They would sell the original pinwheels at cost (or below) and try to make up for the loss by charging five cents over cost on the pencil pinwheels and using waste material for the smaller wheels. Meanwhile, the Twheelers—who had been more efficient in their production and had been wiser in their spending—used scraps to manufacture smaller pinwheels with short handles. They inspected every item for safety and durability. To counter the sales appeal of Windmill's pencils, they offered a one-cent piece of candy with every twenty-cent purchase. Sales persons were chosen, posters were made and advertising displays were arranged. Sales talks were given in the primary classes, samples of the product were shown and notes were sent to parents so that the younger children would not forget to bring money. On the day of the sale, Twheeler sold all of its output well before Windmill.

The treasurers prepared financial reports for their stockholders, including production figures, unit costs, sales revenue, and the like. Twheeler paid eight cents on each share, gave each worker an eight-cent bonus, and rewarded the entrepreneur with an additional 13 cents. Windmill paid seven cents on each share, and used the remaining 56 cents to buy candy for everyone in the firm. I announced a "tax break" from the government and refunded the rents and fines that had been collected. Both companies had been successful, but the children learned that efficiency and cooperation are needed in the rough world of competition.

Evaluation

I prepared an evaluation form so that each person could give his or her opinions on the successes and failures of the companies. In addition to rating their firms in terms of efficiency, the form asked the pupils to comment on the use of mass-production techniques, what sacrifices had to be made

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in choosing to do one thing instead of another (the opportunity cost principle was implied here), how supply and demand affected the sales and prices of their products, and how competition affected their firms. As might be expected, Twheeler got higher ratings than Windmill.

Other means of evaluating the unit included my examining their notebooks, reading research papers, and noting the quality of pupil participation in discussions. Being conscious of the need for good public relations between the home and the school, I tried to keep the public informed of the study. Articles about our work appeared in the news media, and the opinions of mothers, professional educators and economists were welcomed. Some very positive comments were received from these sources.

Perhaps the most encouraging evidence of the success of the unit, however, was the fact that many students did not want to terminate our study of the city. One group contracted to do research about city planning and to develop a plan for the "ideal city" of the future. I showed them slides of Brasilia and took them to visit our city planners. They read about needs and possible designs for cities of the future and formed groups to design their own model cities. Their findings were shared with other students, and everyone seemed to have highly positive feelings about economics as a result of our study of the city.

Consumer Choices

A Fifth-Grade Unit in Economics

Jean Cook, Jeanne McCombs and Dianne Petrek

F. P. Caillet Elementary School, Dallas, Texas

Introduction

As student teachers from North Texas State University, we were given the opportunity to plan and teach an economics unit for fifth-grade pupils at the F.P. Caillet school in Dallas. It would be essential, we felt, to plan activities related to the needs and interests of the children. One thing that we all have in common, of course, is that we are all consumers. The individual may have to wait until he or she has reached a certain age to be able to vote or hold public office, but this is not the case with *economic* citizenship. We are consumers from the moment of birth, we play a role in the economic system from the very beginning, and we cannot start too soon to

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prepare for the problems faced by the consumer in our society. Because of the fact of scarcity (human wants are generally greater than the resources available to satisfy those wants), choices must be made. We cannot have everything, so what shall we choose? If we select one good or service we must sacrifice some alternative good or service that could have been obtained with the same money (or produced with the same resources). The sooner people realize this basic fact, the sooner they can become intelligent consumers and more effective economic citizens.

An important beginning is to know one's self. And, for the teacher, it is imperative that he or she find out where the pupils are in terms of their abilities, needs and interests before attempting to help them to progress. One of our first steps, therefore, was to have the children fill out a 26-item "Consumer Profile." This not only gave us valuable information about the students, but got them started in thinking about their own situations, interests and needs. The forms called for data on age, sex, type of residence, family occupations, educational plans, career aspirations, amount of money spent each week, source of the respondent's money, goods and services commonly purchased, type of responsibilities held in the home, who or what most influences the pupil (such as parents, friends, TV), magazines and newspapers read, favorite movies and TV programs, kinds of stores patronized, community services used regularly, equipment and appliances found in the home, what the student would most like to learn in a consumer education program, and other related items.

Objectives

Armed with information obtained from the questionnaires, we listed objectives and began to plan the activities designed to meet them. The main objective was to help students to understand their roles as consumers in our economy, and the basic aspects of our economic system which directly affect them. Some of the economic terms, concepts and principles to be covered were interdependence, money, the circular flow, prices, the costs involved in preparing for a vocation, how income is determined, the roles of both worker and employer, competition, scarcity, choice-making, consumer demand, the market system, personal budget-making, and government protections for the consumer. Of course, the aims were expressed in more specific terms. In regard to demand, for instance, we wanted to teach the pupils how consumer decisions are affected by price, personal tastes and desires, amount of money available for spending, the availability and price of substitute products, and so on. We would then show them how consumer choices affect the economy, as businesses see consumer demand as a signal indicating what to produce, as changes in consumer preferences bring about shifts in the allocation of productive resources, and as the market in general responds to consumer behavior. Most important, perhaps, was our plan to relate the concept of demand to the occupational choices of the pupils. The individual is free to select the way he or whe wants to earn a living, but this is subject to the demand for the type of service in question.

The objectives were then stated in behavioral terms. These varied in terms of difficulty. For example, one of the simpler objectives was: "Given

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a list of occupations, each child will be able to identify the worker as a producer of goods or of services." One that would require much greater effort was: "Using newspapers, each child will be able to compare the price of an item in Dallas with the price of the same type of item in a small town and list four reasons for differences in the prices."

Activities

We decided to establish nine "stations" in the classroom where different activities would take place. Every child was required to work at each station, but they could proceed in any order they chose. Each pupil had a cardboard folder. Upon finishing his or her work at a particular station the student would put the work into the folder and then go on to the next station. The children worked individually, but five could work at any station at one time. So that we could keep a check on individual progress, the pupils would put a star by their names at the station where they had finished working. The assignments for each station are given below.

Station No. 1. Using crayons and paper, design a package for any product you would like. Use at least two advertising "gimmicks" to sell the product.

Station No. 2. 1. Choose one word from the list of economic terms in the folder. Using construction paper, write the definition for the word you have chosen and draw a picture illustrating that term (both on one sheet of paper). Check off the word you choose to use because a word can only be used once. If the word you want to use already has a check by it, you will have to choose another word. After everyone has done a word on construction paper, we will put the sheets together to make a dictionary.

2. Complete the crossword puzzle using economic terms.

Station No. 3. 1. Using the handout sheet, make a list of all your needs and a list of all your wants. Which list is longer?

2. Fill out the handout sheet on people who are producers of goods and people who are producers of services.

Station No. 4. Using the newspaper want ads, find a job you would be interested in when you get older. List some advantages and some disadvantages of that job.

Station No. 5. 1. Using the food section of the newspaper, write down three sales slogans they use to try to get you to buy their product.

2. Find out which size of a product (any food item you choose) is really the best buy by figuring the cost of the product per ounce. In other words, how much does one ounce of that product cost in the different sizes?

Station No. 6. Find an item in the Dallas newspaper and then look for that same item in the small-town newspaper. See if the price of the item is different or the same. Write down the name of the item and the prices from both papers. Give three reasons why you think it is the same or different.

Station No. 7. Pretend that you have $100.00 to spend. Make a list of the items you would buy with that amount of money. List the items in the order you would buy them and list the price of the items and the total amount spent. Remember, you only have $100.00. Everyone working at Station 7 is to share the pictures.

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Station No. 8. Using the newspaper, compare the price of one item found in three different stores. Write down which item you choose, the names of the three stores and the price of the product in each store. Give two reasons why you think the prices are the same or are different.

Station No. 9. 1. Fill out the handout sheet to make a budget for the Smith family of four remembering their needs compared to their wants.

2. Watch a television commercial at home tonight and write down three "gimmicks" used to sell the product.

Upon completing the work assignments at all nine stations, an individual would begin work on a television show "The New Price is Right." They could work in groups in this effort to write and perform a show demonstrating how people's values influence their consumer choices. In essence, the "contestants" would bid on various products such as TV sets, washing machines and motorcycles. Of course, the presentation (which was given for other students in the school) included commercials.

There had been other all-class activities as well. Although the children enjoyed the work station approach, a break from this was welcomed from time to time. We had two interesting guest speakers. One was a consumer consultant with the Food and Drug Administration. She showed a film on toy safety and discussed government regulations regarding food and toys. The other was a young commercial illustrator who spoke to us about advertising. He displayed samples of his work and explained some of the methods used in advertising. At one point during the unit we read to the class the story "Jerry and Paul Meet Dollar Bill." In this delightful fantasy, two boys find a dollar bill and begin to fight over it. The dollar bill can speak (after all, "money talks," doesn't it?), and it begs the boys to stop fighting. "Dollar Bill" introduces himself and then explains his role as a medium of exchange. ("I'm rather proud of the fact that everyone accepts me as payment for goods and services.") He also tells how he serves as a measure of value and a store of value, using interesting and colorful examples.

Evaluation

A pre- and posttest were administered, in which the students were asked to define various economic terms. The results were highly positive. Because the objectives had been expressed in performance terms, it was possible to have some indication of pupil progress throughout. An individual's work could be evaluated as soon as each task was completed. The production of the TV show enabled us to see how well some of the key ideas had been learned, for here the pupils were required to apply their knowledge to a new and different situation. Finally, we asked them to give us their opinions on the teaching techniques that we had used. Some typical comments are:

> "Textbooks are boring and working stations is a lot of fun."
> "It was the funnest [*sic*] unit we had so far in social studies."
> "I think the stations is better than what we usually do."
> "I liked it cause it has interesting stuff in it."
> "It's ten times better than just answering questions out of the book and reading."
> "I liked it because I liked it."

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Let's Play Colonies

An Economics Simulation for Fifth Graders

Nancy C. Ball

Prospect Point Elementary School, Walla Walla, Washington

Introduction

In the summer of 1972 I developed a simulation to use with my fifth graders in the fall. My goals were to teach them such economic concepts as specialization, goods and services, economic wants, opportunity cost, interdependence, barter, money, taxation, trade, tariffs, and productive resources. Principles related to demand, supply, the availability of natural resources, and the allocation of resources would also be included. No topic or concept would be treated in an abstract way, but each would be related to realistic historical events in a role-playing situation that would be fun as well as instructive.

The Simulation

Each child becomes a resident in a colony in the early 1700's, along with several other pupils from the class. Each group receives a statement describing conditions in its colony. The following is an example:

> Your colony is covered with rolling, tree-covered hills and mountains for about three-fourths of its surface, and with coastal plain for the remaining area. The soil is fairly fertile, but rocky and hard to farm. It has four rivers, three of which join near the coast and flow into a good harbor. The growing season is 130 days a year on the coastal plain, 110 on the hills, and 100 or less on the mountains. There are 40 inches of rain a year, but most falls in the form of snow in winter. You have rich coal deposits in the mountains and good hunting in the forests. The total area of the colony is 30,000 square miles.

Of course, the five other colonies had some of the same resources and conditions, but some different ones as well. Given these facts, the residents of each colony have to decide what to produce. They must see that if they choose to produce a given item with their productive resources, they sacrifice some other item that can be created with those same resources.

In a class discussion, a list of basic wants is established. Each colony will be able to satisfy some of these wants for its people, but others will have to be obtained through trade with other colonies. Trading periods are held in which each may barter several units of its output, seeking to satisfy as many wants as possible. Each time a transaction is completed, two copies of a "contract" are made out, specifying the names of the two colonies (each group makes up a name, a motto and a flag for its own colony),

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the type of goods traded and the amounts. A record of all trading is kept by the Chancellor of the Exchequer in each colony. Later, each group will be able to determine how many transactions were necessary, and how many colonies were involved, before its wants could be satisfied.

The teacher must see to it that the colonies do not attempt to exceed their production possibilities. A colony cannot sell fruit unless it has the proper growing conditions for fruit, for example. An area with iron ore can sell iron products only if it also has coal for smelting and the necessary tools for manufacturing those products. (Of course, these can be obtained through trade with other colonies.) Each child has a chance to conduct the colony's trading sessions, but limits must be placed on the number of pupils active at any one time. After each trading session (lasting about ten minutes), the colonies check off the wants that they have now satisfied and start planning for the next session.

As time goes on, market conditions change and political factors have an impact. Each colony must adjust accordingly, deciding how to re-allocate its resources. There is a Mother Country whose needs take precedence over those of the colonists. Changes may come suddenly—even in the midst of a trading session. For instance, the Mother Country is at war and the colonies must now supply it with iron and coal. The King decides that the colonies are hurting home industries by manufacturing shoes and clothing, so he places restrictions on these activities. He also tampers with the rates of exchange (such as by requiring that two units of shoes be traded for one unit of clothing) and sets rates that will favor the Mother Country at the expense of the colonies. Natural disasters also occur, as in the case of certain crops being destroyed by hordes of insects.

The colonies grow and new needs are felt. Roads must be built so that goods can be transported more easily. Harbors must be dredged, schools have to be established, pure water is needed, and there is a demand for fire protection. The colonists must decide how to raise the money for these things, so taxation becomes a subject for discussion. What kinds of taxes should be levied? How should the rates be set? What standards for fairness should be adopted? The children can learn that some taxes are regressive (such as a "head tax" in which every person pays the same amount, thus forcing the poor to pay a greater *percentage* of their incomes), while others can be progressive. Sales, property, income and other taxes can be examined.

After the final trading session, each colony ascertains the extent to which it has satisfied the wants that were listed at the beginning. The number of trading sessions necessary to satisfy a given want can be noted, along with the way in which resources had to be allocated and used. A class discussion is conducted, not only to review what has happened and to determine what they have learned, but to explore other possibilities. For example, what would have happened if the King had decreed that each colony could trade *only* with the Mother Country? There can be many value questions. Should natural resources belong to individuals or to the colony as a whole? To what extent should people be free to choose their own jobs and decide on their own wants? Should each person keep everything he or she produces, or should there be a required sharing with the elderly and the poor? What goods and services should be produced collectively (by government), if

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any? Why? What sort of government should be established? What kind of tax system should be adopted? How can we use money and credit in our colonies?

Conclusion

The simulation can be as simple or as complex as desired. The teacher can make up economic descriptions for the fictional colonies, or actually describe the situations that prevailed in the American colonies. In the latter case, the pupils can be asked to do research to find out which real colony they have been assigned to, and they can then add to the data the teacher has provided. Actual historical events can be introduced into the simulation, as in the case of various restrictions the British imposed upon colonial commerce and trade. Many of the economic problems and situations can be compared with those actually facing the nation today (such as the controversy over the property tax). The children enjoy the experience, while they learn historical facts, economic concepts, and techniques of research and analysis.

APPENDIX TO CHAPTER 2

Good Ideas in Brief: Intermediate Level

VIOLET MILLER, *Jefferson Elementary School, Little Rock, Arkansas,* found that the writing and performing of a play was a good way to bring together fourth graders of varying academic abilities. She integrated economic concepts into the study of United States history. There were ample opportunities to deal with scarcity, division of labor, interdependence, the factors of production and the functioning of the market economy in connection with the economic aspects of the Indians, the Pilgrims and the pioneers. The play was entitled "Economic Scance." In the dramatization, a "medium" calls forth the spirits of Indians, pilgrims, pioneers and others from the past to discuss their economic problems and situations with people of more recent times. Among the latter are "flappers," members of "woman's lib," modern housewives and entrepreneurs. In the discussions that occur, such economic topics as needs and wants, resources, trade, money, monopoly, competition, the industrial revolution, taxes, transportation, depression, inflation and profit are included. Economic conditions of the past are compared and contrasted with those of the present. Basic economic principles and analytical tools applying to all periods are identified, thus illustrating the way in which economics can be used as an instrument to understand problems and events regardless of when they happen.

MARC MANKIN of *Barling Elementary School* in *Barling, Arkansas,* found that 50 percent of the parents of his fifth graders had been involved in the construction of a nearby lock and dam on the Arkansas River. This

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enabled him to stimulate interest in a study of the facility and of the river. The factors of production, private and public enterprises, division of labor, opportunity cost, taxation, ecology and conservation, the circular flow, monopoly, competition, and labor unions were some of the topics that he covered during the study of the renaissance of the Arkansas River.

GENEVA L. PARRISH of *Parker Elementary School* in *Fort Smith, Arkansas*, established a "make believe" chicken farm in her fourth-grade classroom, in order to teach some basic economic principles. The owner of a chicken hatchery visited the class, explained how the factors of production are used in his business, and gave the children several baby chicks to raise. The pupils learned how farmers depend upon others, how a farm cooperative works, how banks help to provide capital for farms and other enterprises, how taxes must be paid (and what tax revenues are used for), and how farming enters into the circular flow.

ZETTA GROSS of *Belvoir School* in *University Heights, Ohio*, had her sixth graders make a study of school finance. Interest was aroused when the defeat of a school budget posed the threat of a cut in educational programs that the children had been enjoying. A bond issue was also involved, and pupils in the school had helped to promote it. The project was launched after one child asked how much it cost to equip their classroom, and another wanted to know where the money came from. The class made a list of the various people who contribute toward the operation of the school and its programs (ranging from the custodian to the superintendent) and interviewed those persons to learn about their jobs. An auditor from the county spoke to the class about property taxes (the major means of financing the school), and how they are levied and spent. A school official startled the children when he informed them that it takes $1,096.00 to educate each child for one year. He also explained how some state and federal funds are obtained. The pupils made charts and graphs to show the various sources of money. They compared their figures with those of neighboring school systems. The costs of physical education equipment, art supplies, maps, books, audio-visual materials and other items were listed. The class took a field trip to the Administration Building where they received copies of the budget for the 1972-73 school year and learned how each item was established. Alternative methods of school finance were examined, and the impact of various taxes on different people (such as an elderly couple with no children who pay the same tax as a young couple with school-age offspring) was studied. The class did not discover a "fair" method of school finance, for even the experts have failed to do this, but they did learn some practical lessons in economics.

LARRY R. DALE of *Sheridan Middle School* in *Sheridan, Arkansas*, had each of three fifth-grade classes form corporations to produce different products. After learning about various types of business forms (proprietor-

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ships, partnerships and corporations), the classroom firms were established, and each printed and sold stock certificates. Boards of Directors and company officers were elected. One produced necklaces made of paper and glass, a second sold piggy banks, and the third made sachets in the shapes of hearts, owls and frogs. After lessons on the factors of production, the firms began to plan for the use of those factors in their own operations. A Secretary-Treasurer kept company records, and the Vice President for Sales assumed responsibility for advertising the product. Assembly lines were established, with each student specializing in a different task. Unit costs of production were computed. (For example, it cost 14¢ to make each sachet.) Salesmen were to receive commissions for each item sold. Order booklets were designed and printed for the salesmen to use. Records were kept of all expenses and revenues. The stock of the firms fluctuated in value, and some did better than others. One firm's stock doubled in market value (from 10¢ to 20¢ per share), while another's rose only ten percent (from 10¢ to 11¢ per share). Each gained, however, and each corporation made a contribution to the National Wildlife Federation in addition to providing returns for stockholders. The pupils had an enjoyable experience while learning about business organization, specialization, the factors of production, goods and services, how costs are computed, the securities market, and how profits are determined.

Mrs. Frankie Rutherford and her fourth graders of McDermott Elementary School visit Governor Dale Bumpers in the Arkansas State Capital during their study of economics.

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MRS. FRANKIE RUTHERFORD of *McDermott Elementary School, Little Rock, Arkansas,* stressed the world of work and "Careers Unlimited in Arkansas" in teaching economics to her fourth graders. Obtaining exceptionally good cooperation from parents and others in the community, she arranged a series of panel discussions in which the parents and other resource persons discussed their various occupations. The class also made photographic slides for a presentation at a meeting of the Arkansas Council on Economic Education, and visited Governor Dale Bumpers at his office in the State Capitol.

CAROLYN ARICK of *Oakhurst Elementary School* in *Little Rock, Arkansas,* had her fourth graders prepare three series of photographic slides on economic topics. The children worked in committees to plan and develop the slides and to prepare accompanying tapes. The first series was entitled "Who Are Consumers?" It dealt with consumers, goods and services. The second, entitled "Who Are Producers?" explained the questions producers must deal with (such as how much to produce), the factors of production (natural resources, labor, capital and enterprise), technology, economic efficiency and productivity. The final series, called "What Shall I Be?" depicted various occupations and what the different jobs require. Several parents helped by visiting the class to explain their occupations. After each pupil had had an opportunity to engage in all the operations necessary to make slides, the students decided to specialize in the jobs they liked best and did most efficiently.

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CHAPTER THREE

Turtle Enterprises

A Program for Mentally Handicapped Seventh and Eighth Graders

Barbara J. Bauriedel
Central Intermediate School, Midland, Michigan

Background and Goals

Turtle Enterprises is a student-centered, product and profit-oriented business, formed as part of an experimental vocational education program for mentally handicapped students at Central Intermediate School. It began in the fall of 1970, and was based upon the belief that student-centered methods operating in a carefully structured, goal-oriented situation would prove effective with educable mentally handicapped pupils. (Another teacher, Mrs. Diane Kott, was also involved in the development of this program in 1970 and 1971.*) The original list of goals included the following:

- To increase opportunities for a wide variety of practice in all basic skills (such as language arts, math and social studies) in a realistic setting.
- To improve student understanding of the responsibilities of workers, such as punctuality, care of equipment and personal honesty.
- To improve student understanding of the rights of workers, such as safe and clean working conditions.
- To help students to understand the problems of employers, such as meeting various production costs, competition, pricing problems and worker absenteeism.
- To help students to determine their own strengths and weaknesses through self-evaluation.
- To help the special students to gain acceptance in the school and improve their self-image by focusing attention on their work.

Development of the Program

In launching the program we did not discuss the goals with the students in the terms used above, but simply told them that they might form a com-

* I am also deeply indebted to Mr. Don L. Chamberlin, Principal, for his advice and encouragement.

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pany, sell their output and divide the profits among themselves. We outlined a plan in which teachers' attendance records would serve as a basis for a count of hours worked. An excused absence of one day meant one hour of lost time, while an unexcused one-day absence was the equivalent of two hours lost. Students who misbehaved or failed to do their assigned jobs were also penalized by a reduction in their hours worked. Profits were to be divided in accordance with the number of hours worked, a method of distribution which most pupils approved.

These students were not amenable to simulating a corporate structure, with a board of directors and the sale of stock to raise capital. This was too far removed from their real world experiences. Instead, a loan was obtained from a financial backer (who chose to remain anonymous) who sent a message to the students indicating that he knew them to be sensible and hard working. Borrowing was very much a part of their real world, and they understood the need to repay the loan.

Our 29 students in October of 1970 were furnished with a well-equipped classroom, containing such things as tables, shelves, sink, oven, jigsaw and workbench. We also managed to borrow such equipment as an electric wood router and silk-screen printing kit. We decided to make routed wood door number plates for the school and name plates for the teachers. The wooden signs constituted one of the two main product lines we have maintained throughout the six semesters in which the program has been in operation. The other was silk-screen printing work, which is simpler but less profitable. It lends itself to division of labor, however, and to production line operations. Boys tend to be drawn toward the wood work, while girls fear it—at least in the beginning. The silk-screen work requires less skill and less attention to detail and is equally appealing to both sexes. Another difference is that direct sales techniques can be used with the note papers, holiday cards and other printed items while signs must be ordered in advance. The peaks of production thus come at different times, so there is work for all students at all times. Ample practice is provided in reading, writing, telephoning, and computational skills as students must make cost estimates, determine prices, telephone customers, confirm orders, and so on.

To protect the students—especially the girls—door-to-door selling was not encouraged, and parental cooperation was obtained in restricting sales activity to nearby neighbors, family and friends. Order blanks were printed for each product and were used by the students for all sales. Posters and notices were used for sales within the school, and we regularly rented a booth at the Community Christmas Bazaar held in the local armory. The booth was manned by the students with the help of teachers or parents. The students themselves worked out the system for organizing the materials to be displayed at the bazaars. The prospect of working in the booth provided incentive to improve skills in computation, so that accuracy in change-making could be assured.

A way was devised to expose film using an overhead projector, so that eventually we could print our holiday cards independently of local printers for film exposure. Each of the eleven holiday cards printed during the first two years carried the name or initials of the handicapped student who had designed them. We had sought information on copyrights and found that

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a drawing or design is considered "published" only when it is sold. Thus, student designers whose work we accepted not only received money prizes in our holiday card design contest, but could consider their work as being published. The impact of these factors on our costs was a subject for class discussion, and the students discovered, on their own, some of the important principles involved.

From the outset, the students were responsible for keeping accounts, listing customer names and addresses, making deliveries, recording receipts, making out bank deposit slips, and reconciling bank statements. We had made a tour of a bank early in the program and a number of pupils had opened personal savings accounts. Very gradually we worked toward the day when students could be brought to understand the need for providing their own capital investment funds.

By the time we were ready for the first distribution of profits we had prepared a Student Credit Union card. Students could now withdraw money for school-related expenses. Thus, they acquired a better understanding of credit unions. By limiting their spending to school-related items such as tickets to athletic events, parties and yearbooks, we helped to give them a greater feeling of "belonging." In a number of ways, the project led to greater interaction with "regular class kids," many of whom came to our classroom on their own time to learn how we made patterns, prepared stencils, did screen printing, and the like.

At the start of the project, we had asked that students be allowed to retain control over the purchasing of materials, payments for advertising, postal costs, and so on. Because of limited verbal skills, a tendency to think only of the tangible and the immediate, and factors related to family life styles, these young people would have difficulty understanding the meaning of gross and net profit. It would be even harder to grasp such things as long-term inventory and expenses going beyond a given semester. With profit as the motivation, however, and with our insistence that they do things for themselves, ideas were more firmly implanted. For example, a boy might not remember the price of paper after having seen it on a form of some kind, but if he had telephoned three paper companies himself to ask the price of a particular weight and color per ream (a major task in itself for these students), he would soon know which one was the cheaper, be able to make comparisons based upon quality as well as on price, see that inexpensive one-ply paper napkins are no bargain if they are less durable and less efficient than the seemingly more costly three-ply type, and be able to help the class to make decisions on which item to purchase.

Even the slowest of students soon began to realize that first we had to earn enough to cover our production costs, and then start working toward profits. Each semester we would have a "Break Even Party" or a "Profit Sharing Party" which helped to drive home the importance of these concepts. Fortunately, as yet there have been no losses, but by carefully recording costs and revenues they will know if they are not making enough to break even and will act accordingly.

An understanding that a business must sometimes reinvest its profits came when the students discovered the need for an electric sander to speed up the removal of excess spray paint on the wooden signs. After reaching

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the break-even point, then, they took the first $17.00 of profits to buy this item. They also learned by experience that an attempt to cut costs by reducing advertising and promotional expenditures could result in smaller sales and a loss of revenues. They found that waste and inefficiency are costly, and they learned that consumer demand can change so that a once-popular product may no longer be marketable. The need to design new products was felt from time to time, and at one point we decided to replace our holiday cards with placemats and napkins. (The "groovy" cards that had been produced for students did not appeal to the housewives who had more money and who patronized the bazaars. Intuitively, then, the youngsters learned something about the way in which effective demand guides production in a market economy.)

The "skull sessions" that were held to discuss our problems relating to profits, market research, control of waste, advertising and operational efficiency often led to an examination of the local or national economy, labor relations, competition and government's role in our system. A long unit on consumer economics emanated from one of these sessions. Interest in their own personal economic welfare was not the only motivating factor, however. The students were learning to accept responsibility and to consider values. A chance to be of service to the school came when the girls' volleyball team found that commercially printed T-shirts were too expensive. The class discussed the matter and decided to print these white cotton shirts at cost. Our first attempt at printing on fabric was a success, earning for us the gratitude of the team and getting us some good publicity. This resulted in our getting orders to print corsage boxes, program covers, shirts for a basketball game, award ribbons, announcements, invitations, posters and paper napkins. We reduced costs by using leftover material, such as by printing posters on the backs of unsold placemats.

Our reputation grew. The Hospital Auxiliary (for whom we had printed program covers) offered to let us set up a booth at their statewide meeting, and reported our work in their newspaper publicity. They also invited us to a guided tour of the hospital, with emphasis upon seeing the types of jobs available to "any high school graduate who's willing to apply." Much interest was shown by the pupils in hospital work, and no teacher-planned career unit could have been half as effective.

When it was felt that the pupils had reached the point where they were able to understand more about savings and capital investment, we reviewed the reasons for making cash payments for some items, why we had borrowed money, why some enterprises are formed as partnerships, and why investors will put up the money to help start a business. The suggestion that some of each semester's profits be put aside for investment was not immediately popular. When reminded that the purchase of the sander had taken 12 percent of a semester's profit, however, and that the sander had improved their efficiency and future profit-making potential, they began to be more receptive to the idea. Finally, we set up a "story problem" on the board based upon the previous semester's experience. This was to find out how much of a sacrifice each student would have had to make if a certain portion of the profits had been saved for future investment. Since this ranged from seven cents to a high of only 70 cents per student, there was great re-

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lief and even laughter on their part, and they quickly voted to save ten percent of the profits.

Conclusion

Looking back, it is plain that only part of the gains have been measurable—better attendance, increased participation in student activities and fewer discipline problems. With one exception, all students achieved at or above the expected level in subjects tested, on the basis of IQ scores and psychological evaluations. Of course, objective evaluation of a program like this suffers from insufficient number of students, lack of control or comparison groups, individual rather than normative assessment of achievement, and so on. Even feedback from parents must be considered nonrepresentative. Subjective evaluation, although frequently colored by teacher expectations or by changes in the frequency and severity of problem situations, does offer clues to the direction and relative degree of behavioral changes.

The kind of "triggering" of ideas germane to a project like *Turtle Enterprises* allows the youngsters to choose the direction in which they wish to go. They learn because they see why they must acquire knowledge to meet a recognized need. Instead of an adversary, the teacher becomes a helper and guide. The pupils learn to accept responsibility for themselves and others, to look for causes and consequences, to examine one's values, and to exercise leadership. The project also presented many opportunities to bridge the gaps between subject areas and to draw upon the various disciplines as instruments to help to solve problems.

It is my belief that with adequate advance preparation and carefully structured nonauthoritarian learning situations, and with clear-cut goals designed to meet the educational, social and emotional needs of the students, programs like this one can be practical and effective. We may never know whether these students become more dependable workers or whether their lives are any more satisfying as a result of the skills and attitudes developed in the program. We do know that several of our students from the first group have entered high school, and we hope that the use of the methods described here will continue to provide opportunities for each student to experience success.

We do not regard *Turtle Enterprises* or the vocational education program as a fixed or "finished" project. The success or failure of any such program will be closely related to accurate assessment of students' educational needs in the light of changes that are occurring in the world in which they must function. We do believe that certain concepts will always be vital—development of responsibility for self and concern for the rights of others—and that those concepts can best be taught when the students are put in concrete situations in which the principles are put into practice in the context of "here-and-now" decisions and their consequences. It is really worth all the extra work and worry.

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What's Happened to Crystal Mountain Mine?

A Pilot Study in Economic Geography for First and Seventh Graders*

Anna McKinney and Berthola La Rue

Berryville Schools, Berryville, Arkansas

How It Started

Children of all ages have a natural curiosity—a curiosity that can be utilized to motivate them to learn. A glittering rock that seemed to outshine all the other specimens covering the first-grade's science table, and a beautiful rock from Crystal Mountain Mine which the seventh-grade teacher was using as a paper weight, served to arouse the interest of the pupils in these classes. When one of us casually mentioned our pupils' interest in the crystal rocks, we decided to work together to capitalize upon their intense curiosity.

How could we induce "sophisticated" seventh graders to work with younger children? A trip to the site of the mine might bring about rapport between the two groups. The first graders certainly could not make the trip on their own, and too few mothers were available to help. Thus, the older children could play an important role in protecting and supervising the younger ones.

Another problem was the question of where to fit into the curriculum this study of our natural resources. As the project developed, it became clear that every subject in the curriculum could be drawn upon to contribute to the objectives we were attempting to attain. Thus, geography, science, safety, health, arithmetic, the language arts, and even music and art were utilized in this study. Some of our specific objectives were as follows:

- To understand the concept of private enterprise, and how it is reflected in the local economy.
- To recognize the economic value of natural resources.
- To see the relationship between the supply of a product and its market price.
- To learn about specialization and division of labor.
- To understand the roles of the various factors of production.
- To appreciate the need for conservation of resources.

In the next section we set forth the activities which were used in helping our pupils to achieve these goals, both through cooperative efforts by the two

* This is a brief summary of a 167-page report. The full report may be obtained from the Vernon R. Alden Library (Kazanjian Materials), Ohio University, Athens, Ohio 45701.

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grade levels and by independent work within each classroom.

Steps and Procedures Followed

In seeking answers to their questions about the rocks, the seventh graders discovered that the soil, the forests and the rocks (used for decorating purposes) had been among the important natural resources of our area during pioneer days. They then found that overgrazing and overcropping had worn out the soil, that some of the forests had been cleared to extend crop land, and that the lack of modern technology and adequate labor had prevented efficient utilization of the rocks. The students began to understand that several factors of production are essential, and that these factors must be in some sort of reasonable balance in order to maximize output. In tracing the history of the Crystal Mountain Mine, they learned that strip mining reduced the supply while demand increased or remained constant, thus pushing up the market price.

Meanwhile, the first graders were pursuing the same topics, albeit on a simpler level. By relating the facts and concepts to personal knowledge and experiences, we were able to reach the younger children. For example, in discussing the question of why we do not have as many trees as we used to, one youngster said: "My daddy has a saw mill. His business is slow. Men can't find enough trees to bring in." Thus, the children could see that their personal welfare is affected by the loss of natural resources. The reasons for the depletion of those resources were then examined. Economic choice-making was an important subject for discussion, and the children learned that when the rocks became scarcer and more expensive, one could continue to purchase them only by sacrificing something else. Thus, before taking the trip to the mine, the pupils in both classes had acquired some basic facts and concepts that would help to make the trip a true learning experience rather than just an enjoyable outing.

The seventh graders had had no previous formal instruction in economics, and the first graders had been introduced to economic terms and concepts in the previous semester. There were many opportunities to draw upon personal knowledge and experience to inculcate new ideas and facts. A new super-highway had been completed only recently in our area, and plans were on the drawing board to bring our small airport up to commercial standards. These were exciting developments, and we could relate them to the transportation inadequacies that we had found to be factors in failing to utilize our natural resources efficiently in earlier times. Many parents were employed in local industries, including food-processing, garment-making, and the production of charcoal. Thus, the concepts of specialization, division of labor, capital, labor, land and market were readily applied to familiar situations. The basic question which the two classes hoped to answer was: Since the economy of our region depends largely upon its natural resources, human resources, capital and available transportation, how can we develop this area without destroying its natural beauty?

At times, a small failure can lead to a large success. Such was the case with our efforts to locate the Crystal Mountain Mine. Each first grader had been paired with a seventh grader, and they had several days to become ac-

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quainted before taking the trip. Specialization was practiced, as some were to be in charge of cleaning up litter, others to serve as guides, and so on. Accompanied by Patrick Bishop, a practice teacher from the University of Arkansas, several mothers, Dr. Robert Stephens of the University of Arkansas (with his video camera), and reporters from two newspapers, we embarked in two buses. It was a lovely spring day, with a carpet of violets on the ground and the dogwood bursting into blossom. Here and there we found some crystal rocks, but no mine! Our failure to locate the mine actually intensified pupil interest, however, for it created an aura of mystery and a determination to solve the puzzle.

In the seventh-grade classroom, free discussion proved to be an important educational technique. We had only five weeks for this project, with one 55-minute period per day allotted to this study. As we examined the geographic aspects of the area and traced its history, the basic economic problem of scarce resources in relation to unlimited human wants became a paramount issue. Related economic terms and concepts were brought out, discussed, listed and defined. The same sort of thing was happening in the first-grade room. For example, in discussing our trip the children recognized that division of labor had occurred. The people who drove the buses were not the same as those who had manufactured them. It was recognized, too, that the drivers produced a service while the makers produced a good. Government's role was touched upon, for someone raised the question: "Who paid for the bus?" This introduced taxation. As the pupils pursued their interest in the bus, the conversation developed into a broader consideration of transportation in general and how it contributes to the economy. Concern was expressed over the destruction of natural resources and over pollution. "Give a Hoot! Don't Pollute!" was taken up by all. The factors of production, particularly as they had been utilized in the mine, were discussed. Now let us briefly show how each subject in the curriculum was included in the project.

In social studies, the seventh graders learned about the principles of the free enterprise system by studying the Crystal Mountain Mine as an example of the workings of the market economy. Books, films and filmstrips were used to support the class discussions. The first-grade children discussed the rocks in terms of economic needs and wants. Simple questions often led to an examination of more complex situations. For example, someone asked: "Why did the laborers work at the mine?" To answer this we had to find out what other choices were available. What other jobs existed in the community at the time? What sorts of industries were there? Which paid the highest wages? Why? How was the community affected by its economic activities? How did it differ from today, and why? What kinds of wants and needs did people have in the past as compared to now? They simulated the situation of the past by playing the roles of mine workers and the like, and attempted to speculate about how a mine would be operated 100 years from now.

The older pupils looked into the history of their own families, for many were the grandchildren or great-grandchildren of the pioneers who first came to Arkansas from Tennessee and Kentucky. They compared economic conditions of then with now, and noted the development of technology in

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transportation and other fields. Different types of maps were used constantly to locate the places that entered into the discussions. The first graders collected pictures of modern machinery and the simple tools and equipment of the past. They learned that specialization and division of labor (a favorite topic with them) had increased as technology had advanced, for machines made greater specialization possible and reduced physical work.

Ecology and conservation were of prime interest in both classes. Our trip had presented us with a superb example of nature at its finest and had awakened both groups to the sights, sounds and odors of nature and to the beauty of their own community. The seventh graders made a list of the natural resources in the area, and discussed the economic reasons for the depletion of some of those resources. The first graders discussed some of the troublesome "trade-offs" with which we are confronted. New roads would have made the mine more profitable, but would have destroyed many trees, shrubs and flowers, they reasoned. They saw, too, that a new road might result in higher taxes, but this did not defer many from opting for a road. Some thought that there could be a compromise between the "capitalists" and the "environmentalists," in that such things as "litter patrols" could be set up.

Lessons on safety are primarily intended to help children avoid painful injuries to themselves and others, but they can also include economic ideas. The seventh graders investigated mine safety practices, past and present, and began to understand that work-related damage to health is not only a tragedy for the victim but represents an economic cost in terms of loss of man hours of labor, medical expenses, and the like. Thus, while safety procedures and equipment might appear to be costly in money terms, they probably more than pay for themselves in the long run. In the primary class, we related the need for safety to the rules of the playground and to our conduct on the bus trip. Health was related to the project, as the seventh graders discussed choice-making in regard to selection of food and clothing (considering which items of food and clothing would yield the greatest utility for the least cost), while the younger children examined these goods in the context of economic needs and wants. Hopefully, they all realized that healthy people are also more productive.

Because we were stressing natural resources, there was no difficulty in relating science to our lessons. The seventh graders conducted experiments to test the components of the crystal rocks, and noted the types of soil, flora and fauna in our region. The first graders were regular "rock hounds," and as they collected specimens they gave some thought to the relative economic values of these items. It was not too hard to see that because the "sparklies" were pretty they were in greater demand, and therefore commanded a higher price.

Exercises in arithmetic were an integral part of our study of taxation. The older pupils identified the types of services provided by government, and then examined the various kinds of taxes in existence. Parents were more than willing to inform their children of the taxes they pay, and the percentage of income going for taxes was revealed. The first graders were fascinated when they learned that they too pay taxes! Those services immediately apparent to young children (the library, the school bus, the

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school itself) were cited as things which they were helping to pay for when they paid taxes on their purchases.

The language arts were used throughout. Each seventh grader wrote his or her story of the trip to Crystal Mountain, and many used poetry as well. The role of the entrepreneur was explained in getting the crystal rocks to the market. These older students also engaged in research, gave oral reports, and made tapes of our discussions. The smaller pupils were enthralled by the idea that they could be of service to others by recording their learnings on charts, tapes, in art creations, and through poems. (Two little "entrepreneurs" thought they should be paid for their efforts, but the majority voted to "work" without pay.) Many puppet shows were invented to demonstrate such things as the factors of production.

Art lessons contributed to the posters, charts, collages and other creations of the students, augmented by songs which could also help to convey some of the economic facts and concepts. Poems were set to music, and each class performed its musical creations for the other.

Evaluation

Effective evaluation is an on-going process. The teacher determines whether or not the objectives are reached not only by administering comprehensive unit tests of a formal nature, but by observing pupil behavior on a daily basis. Thus, when one of our lesson plans called for students to answer the question "What brought about the decline of the Missouri and North Arkansas Railroad?" it was possible to determine how well the respondents had understood some of the economic principles related to this event. In another lesson, the pupils were asked not only to describe the level of living that prevailed in our area at various time periods, but to explain the factors that led to each level. Some did special assignments for extra credit. For example, one such assignment called for the student to report on the paving of State Highway 21, identifying the economic needs that gave rise to the project, the way in which the factors of production were used, and so on. Pupil work, in the form of essays, poems, songs, posters, charts, etc., also revealed the extent of their learning and understanding. Perhaps the best evidence of the success of this venture lies in something less tangible—there simply was never enough time to do everything that everyone wanted to do. The pupils had become involved in important real-life issues, and there had been a continuing sense of excitement throughout.

Beat Detroit or Bust

A Game on the Economics of Automobile Ownership

Carol A. Heselton
Como Park Junior High School, St. Paul, Minnesota

Background

While taking the course "Current Issues in Economics" at the University of Minnesota, I was required to write a research paper or develop materials which could be used in teaching economics. My project was a combination of both. In *The Cost of Operating an Auto* (Washington: U.S. Department of Transportation, 1967), E. M. Cope says: "The average American is well aware of the fact that, except for buying a home, he will never purchase anything nearly as expensive as his car. But beyond this, he probably has no more than a vague notion of how much his car costs to own and operate." Cope went on to point out that a person buying a $3,000 automobile would be shocked to learn that he or she will spend an additional $2,230 for gasoline, $1,415 for insurance, $1,763 for maintenance and repairs, over $1,800 for parking and tolls, and about $1,188 on state and federal taxes. Of course, these are broad averages taken from a study made by the Bureau of Roads several years ago, and would probably be considerably higher today.

In any event, during a class discussion about the needs of people during different periods in American history, it became evident that my seventh graders had little understanding of current car prices, repair costs and general operating expenses. Most students had the notion that as soon as they were old enough they would buy a car, get it repaired for next to nothing, and cruise around for several years paying only small amounts for gas, oil, minor repairs and insurance. Feeling that their interest in cars could be used as motivation to learn some basic consumer economics, and that the relevant economic principles would be more meaningful if applied to a realistic situation, I developed the "Beat Detroit or Bust" game. Some specific goals were as follows:

- Develop an understanding of various costs (such as depreciation and insurance) and how they are computed.
- Instill the idea that not all costs are money costs.
- Develop an understanding of average operating costs per unit of time and per mile for various types of automobiles.
- Create an awareness of the factor of chance so that the students would learn to be prepared for possible unexpected emergencies and their costs.
- Introduce students to sources of information that will enable them to make more intelligent decisions when buying cars.

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The Game

A game board was constructed on a piece of cardboard 22″ x 28″ in size. Near the periphery of the board, 36 squares (2″ x 2″) were drawn. Some of these squares were simply labelled "Chance," while others indicated specific situations. For example, one square was to represent a situation in which the car was hit in a parking lot and required $70.00 worth of repairs. Another provided that an accident occurred, that it was the fault of the player involved, that it would cost $100, and that the player would lose the car for one week as a result. The chance cards, which would be placed in the middle of the board, contained other situations that might arise in a real-life setting. For instance, one chance card read: "Find and repair oil leaks in pan and valve. Labor—$29.70; Parts—$5.50; Total—$35.20."

Three types of automobiles were used in the game, one of which was foreign and two of which were American-made models. In my research project, mentioned above, I had made a study of the operating costs of these three vehicles, including such things as original purchase price, cost of loan, depreciation, maintenance and repairs, tires, accessories, gasoline, oil, insurance, parking, tolls, taxes, fees, and the like. Average operating costs per mile had been computed. The data used in the game were based upon actual expenses incurred by three of my friends who owned these types of autos. I used the estimates made by *Consumer Reports* in listing the probability of major repairs for each model, and ascertained labor and parts-replacement costs from various garages and flat-rate manuals. Thus, all figures and situations were as realistic as possible.

The players choose a car at random. (Small toy cars are employed to represent the real vehicles.) Each player receives paper and pencil. Three columns are marked on a blank piece of paper and entitled "Money," "Friends Inconvenienced," and "Days Use of Car Lost." This is used to record the costs incurred throughout the game. Each player starts by writing the basic amount paid for his or her model of car in the "Money" column. A die is rolled, and the person getting the highest number goes first. Proceeding in a clockwise direction, the player stops on the proper square—which may or may not involve a cost. Some squares are simply labelled "Cruising Along," or "Parked at Home."

Different kinds of costs are incurred as the game progresses. For example, a player lands on a square marked "Defective work on a repair job—return to shop. Lose one day and inconvenience one friend." The player does not have to pay for the work, but a real cost is involved in the loss of the vehicle for a day and in the fact that a friend was inconvenienced in some way. After a player passes the fourth square, the warranty ends and more money outlays can be expected. Each cost is recorded on the player's tally sheet.

When a player lands on a square labelled "Chance," he or she selects a chance card. Each card applies to only one model, so the player ignores the card if it is for a model other than the one owned by him or her. Going around the board once simulates the passage of one year. At the halfway mark (the upper left-hand corner of the board) the player must tally the

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operating costs experienced thus far. They are tallied again at the end of a "year"—that is, as the player completes one go-around of the board. The game is over when all three players have gone around the board twice. The player with the lowest operating cost is the winner.

Results

To find out how much the students already knew about the economics of automobile ownership, and to be able to measure progress, I devised a 13-item short-answer test. It includes questions on the meaning of depreciation, average insurance costs, the dealer's obligation under a warranty, operating costs, and the like. On the pretest, pupil scores ranged from 0 to 9, with a class mean of 5. On the posttest (administered after the game was used), the scores ranged from 3 to 12, with a class mean of 8. All but three of the 29 students had gained (one regressed and two achieved the same scores on both the pretest and the posttest).

This simple game was clearly effective in increasing student knowledge of the costs of automobile ownership, but its use can go well beyond the mere acquisition of such facts. A two-hour block of time was set aside for the game experience. Before playing the game we had a brief discussion of the importance of cars in our economy, our national transportation needs, and how our needs and our transportation technology have changed. While three students had been selected to move the toy cars around the board, all students participated by keeping tallies on the model of their choice. Descriptions and operating cost sheets had been distributed, giving data on each type of car involved. The rules and procedures of the game were read and discussed. As a new term would come up during the game (such as "depreciation") its meaning would be discussed. When a player landed on a square or took a chance card, he or she would read aloud the situation described thereon. Others in the class would ask questions about these items. There were discussions on why some costs were higher than others, why costs differed from one model to another, how I had decided to number the squares, where I had obtained the information on the squares and the cards, etc. This gave me the opportunity to acquaint them with sources of information and with means of computing costs.

If the game had been used earlier in the school year instead of during the final week, other opportunities would probably have presented themselves. We might have distinguished between fixed and variable costs of auto operation and perhaps compared these with similar costs incurred by business firms. We might have analyzed the automobile industry and its impact on the national economy. Comparisons could have been made between the cost of using one's private car and using public transportation to make a particular trip. Some of the social costs of automobile use might have been examined, such as air pollution, traffic congestion and noise. In short, the game can be used not only as a motivational device and learning instrument, but to stimulate further study and research. One indication of its success is that several other teachers have expressed interest in using it in mathematics, consumer economics, social studies and automobile mechanics classes.

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Waste Not, Want Not

Teaching Conservation in Grades Seven and Eight

Marjorie Albrink, Maxine Chapman, Peg Crowe, Linda Dickess, Margaret McMillan, James Mains, Lyndall Rapp and Carl White

Ironton Junior High School, Ironton, Ohio

Introduction

Ironton Junior High School is composed of seventh and eighth-grade pupils and has an enrollment of nearly 500 boys and girls. The curriculum includes mathematics, the language arts, social studies, developmental reading, remedial reading, science, physical education, home economics, and industrial arts. For the past few years we have used homogeneous grouping in the academic subjects, percentile scores on the California Achievement Test being employed to determine the individual's group or "phase." Phase I children have scores at or below the 20th percentile, are seriously deficient in basic skills, and need remediation. They are placed in classes of about 12 pupils. Phase II is for children between the 20th and 35th percentiles and somewhat deficient in basic skills. Their class size is limited to no more than 20. Phase III groups are made up of children whose scores are between the 35th and 65th percentiles and who are achieving at an average rate. Phase IV pupils score between the 65th and 99th percentile and are capable of learning in depth.

The authors of this report, in discussing units of study in their individual classes, began to envision problems associated with this "phasing" program in the school. Because of the homogeneous grouping, we feared that some pupils would be deluged with economic projects while others would receive no exposure to the discipline at all. Everyone is intimately affected by many economic problems, so we finally concluded that there was need for a group project involving the entire school. After much deliberation, we decided that the best vehicle for our purposes would be a play containing a few simple economic principles which we considered important. Among the concepts we wanted to emphasize were the following:

- Mankind has unlimited wants, but productive resources are limited.
- Unwise and wasteful use of resources will lead to economic problems.
- Human labor and intelligence are key factors in making wise use of other resources.
- Long-range planning and conservation are essential if economic prosperity is to be maintained in any region.

Development of the Project

The basic plan was to demonstrate in Act I of the play that the early settlers in the Ohio Valley had many needs and wants that could not be met

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because of the lack of economic resources. In all three acts we would show that many of our once plentiful resources have decreased over the years. Act II was to illustrate the vital importance of human resources in assuring proper use and conservation of natural factors. In Act III the energy crisis would be dealt with, and we would imply that planning and conservation are needed. The project was to be developed through a carefully planned division of labor.

One of us assumed responsibility for doing research on early Ohio to find out what natural resources existed and how they were used or abused. Phase IV seventh graders in a mathematics class worked in groups to obtain the data. On the first day of this segment of the project the pupils viewed filmstrips on graphs, and had a discussion on how and why graphs are used. On the second day the class was divided into groups of four or five pupils. Using such books as *The American Almanac*, *The Ohio Almanac*, and *The Statistical Abstract of Ohio*, each group sought the necessary information and then decided which type of graph would best represent their data. The third day was spent in determining how the work would be divided within each group, and starting to prepare tables and graphs. Work continued on the fourth day, and on the fifth day all groups had completed their graphs and tables and posted them on the bulletin board. This part of the project was culminated on the sixth day by having each person in the group explain to the class what his or her part had been in preparing the graph, after which the group chairman explained the significance of that graph.

The science teacher concentrated upon natural resources and the economic impact of technological developments. The film "The Living Soil" was shown, and this led to a discussion of land and the other factors of production—labor, capital and enterprise. A unit of study on space was used to stress technological advances and how they affect the economy. A cassette tape titled "Space Costs vs. Social Needs" was very useful. Additional information was obtained from books, periodicals, filmstrips, other films, the encyclopaedia and current newspaper articles. Several days were spent in making posters that depicted wants, resources, conservation and technological advancement. These were displayed around the school building to help to prepare the students for the play and to reinforce their learnings.

The language arts teacher helped the pupils to write the play, hold "try-outs" for the roles and conduct rehearsals. The home economics teacher assisted with the costumes, while a physical education instructor helped to solve problems of lighting and sound. Others aided by selecting appropriate music and dances. Now let us examine the play itself.*

Act I. The first act is set in a trading post in the early 1800's. The characters are dressed very simply, the men wearing flannel shirts, dungarees or overalls, and the women wearing long dresses. The props include crude tables and benches, boxes, jugs, sacks, milk cans, candles, bolts of cloth and other simple articles. Without using sophisticated economic jargon, the characters bring out a number of economic facts and principles during their discussion of life in Ohio. The shortage of labor is pointed out by the

* Space does not permit publication of the entire script, which may be obtained from the Vernon A. Alden Library (Kazanjian Materials Collection), Ohio University Athens, Ohio.

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boy who says ". . . we got more work to get done than we have people to do it." Barter is illustrated when one character offers to trade "these sewing things" for a bucket of honey. There is brief mention of the low wages paid in early factories. The fact that an abundance of natural resources attracted settlers is discussed, and the need for specialists (such as blacksmiths and teachers) is cited.

Act II. In this act, the year is 1872. The scene is similar to that of Act I, except that there are now oil lamps instead of candles, and there are other more modern articles on hand. The costumes are a bit more elaborate. Coal mines, lumber mills, charcoal kilns and blast furnaces are in operation, but some natural resources are being wasted. The owner of the iron works is taken to task by one character for having cut down the trees and extracted "all that ore." This businessman appears to be motivated entirely by the desire to make money, but another individual points out that the country needed iron during the Civil War and now needs it for the railroads. (Thus a "trade-off" is implied—natural resources are "traded-off" for technological advancement.) Good wages are being paid, but working conditions are poor. There is a company store in which deserving workers have trouble getting credit, and the employer does not help those who have been injured in the performance of their jobs. These conditions are discussed in detail by the characters, but there is action as well as talk (in the form of a fist fight). There are humorous situations and a bit of romance too.

Act III. A city manager's office provides the setting for Act III, and the time is today. The fact that the area's natural resources are being used up is beginning to be impressed upon the people. The city manager's teenage daughter gets a car for her birthday but can't use it because of a gasoline shortage. At one point the city manager states: ". . . we finally get somebody who wants to put in a recreational building, and he can't get fuel for heat in winter, or an air-conditioner in summer." A large power company wants to build a new plant in the town, and this leads to a discussion of its impact on the environment, the provisions of relevant federal legislation, and the "trade-offs" involved. (To get more power, which the area needs, the people will have to sacrifice more of their natural resources and expect greater pollution.) Government's role is another topic for discussion, not only as it applies to conservation and pollution control but to such things as government actions which have affected farm prices. A light touch is provided by three "singing garbage men" who sing about the pollution problem. A sample follows:

> If you visit American city
> You will find it very pretty.
> Just two things of which you must beware,
> Don't drink the water and don't breathe the air.*

When an irate citizen complains about an increase in her water bill, the city manager and others explain why costs are rising. Short-run as opposed to long-run needs and planning are also considered.

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* From the song "Pollution" by Tom Lehrer. "Pollution" has been recorded by Reprise Records (33 rpm LP, No. R-6179).

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Outcomes

An enormous amount of work went into the production of "Waste Not Want Not." Was it worth the trouble? The answer is an unequivocal and enthusiastic "yes!" Not only did the pupils have fun working on the project, but they learned a great deal in each subject involved, and the play carried an important message. We have a record of the play on videotape which can be used for other classes and which will be presented on our local television station. We are convinced that the production of a play can be a good vehicle for teaching economic concepts as long as those concepts are kept simple, brief and to the point. Furthermore, they must be related to something with which the students can identify and which affects them in their daily lives.

After the play had been presented, the students discussed the economic facts and concepts which it contained. Such terms as wants, goods, wages, demand, supply, profit, free enterprise, barter, money and depression were included. We constructed a test made up of 18 items based upon these and other concepts in economics. The test was administered the day before the play was presented, and then again the day after. The mean score on the pretest was 10.02, while the median was 10.57. On the posttest the mean score was 13.03 and the median was 13.09. Although other factors might have been instrumental in this gain, it seems reasonable to assume that the performance of the play was in itself an important contributor to pupil learning of economics.

In summary, this project provides convincing evidence that economic concepts can be included in many different parts of the curriculum, that teachers specializing in widely different fields can work together effectively, that variations in student ability can be overcome when the youngsters are interested in a common goal, and that a significant amount of economics can be taught in a manner that will be enjoyable as well as instructive.

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An Economics Elective Course for Seventh and Eighth Grades

Joe Adamich
Heaton Middle School, Pueblo, Colorado

Introduction

Heaton Middle School is located in a suburb of Pueblo, Colorado. Most of the students are white, middle-class and upper middle-class, with a few Chicano children who are bused from another area. In our school several courses are offered as electives during the seventh period. Among these are such attractive offerings as sewing, model building and weightlifting. Aside from the economics course to be described in this report, other social studies electives were ecology, anthropology and sociology. Clearly, my nine-week economics program would have to be interesting and exciting in order to compete with other available courses. Therefore, I have tried to develop activities that will be fun while providing the pupils with important understandings about our economy.

Nine weeks is a short time in which to teach much economics to youngsters in their early teens, so I decided to concentrate upon a few major facts, concepts and principles. The main objective was to give them a clear understanding of the market system, and to do this in such a way that they would be stimulated to learn more about economics in the future. Among the concepts that would be stressed were interdependence and what it means to the individual, scarcity (limited resources vs. unlimited wants), consumer demand, production, money and income. Because the students ranged in ability from low-average to very bright, there would have to be a variety of developmental activities, appealing to different needs and interests, and suitable for pupils of different ability levels. The remainder of this report is but a brief outline of some of the techniques that proved to be effective.

Activities

The course was based upon two major educational tools. The book *Life on Paradise Island** was used to teach the basic economic content and to engender discussion. Then, a market game was used throughout the nine-week period to give the students a feeling for how our system actually works. We produced paper currency, known as "Mickey Money," in six denominations. This was used to reward the pupils for written reports and the completion of other assignments. At the end of the nine weeks, the money could be used to purchase such things as paperback books, mag-

* By W. H. Wilson and Roman F. Warmke (Glenview, Illinois: Scott, Foresman and Co., 1970).

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azines, pens and pencils (purchased from the social studies departmental budget) at an auction. Films on economic topics were viewed about once per week, and the youngsters could use class time to play such games as "Stocks and Bonds" (produced by the 3M Corporation).

In the market game that was such an important part of the course each student was expected to engage in various activities in order to "earn a living." They could do such things as invest in corporate securities, hold government jobs, perform services for others (such as computing their income taxes), buy government bonds, and open bank accounts. Each student had been given $2,000 in "Mickey Money" in order to get the game started. More could be earned by doing various assignments. Groups of students could form corporations, issue stock, produce services, and pay dividends to shareholders. The teacher, or a student "hired" by him, would perform the usual regulatory functions governments perform in regard to corporations.

To establish a bank, students had to sell at least $5,000 worth of stock. An examiner would keep an eye on the bank, and deposits were to be insured. Corporations provided services for one another as well as for individuals. These firms hired pupils to do various jobs, and they were required to pay a legal minimum wage of $50.00 per week. An income tax was levied, and a simplified tax form was prepared and duplicated for the filing of returns. Certain expenses could be deducted from gross income. Firms in trouble sometimes received subsidies from the government. The banks, of course, paid interest on savings accounts, loaned money at various rates of interest, provided checking accounts, acquired government bonds, and provided a safekeeping place for such valuables as government bonds, stock certificates and unfinished reports.

Eight companies were formed in the class. Their stock fluctuated, so a large chart was prepared and posted on the wall to enable us to keep records of daily price changes. Information on the government bonds was also posted on this chart. After the first week, one student began to serve as a stock broker. The last few minutes of class time would be devoted to stock market transactions. Closing prices and the number of shares sold would be noted each day. The corporations had to meet various expenses, and some would sell new stock to raise needed capital. Some of the students became speculators, a factor that helped to guarantee a "lively market." From time to time there were stock splits. Some of the firms were more viable than others, and although none actually went bankrupt, two of them found the market price of their stock dropping as their fortunes dwindled.

As time went on, the students could assume more and more control over their "mini-economy." For example, during the first week the teacher acted as the government. By the middle of the second week, however, the class had elected three of the students to serve in that capacity. Laws were passed, and I did not interfere with these even when I could see that they were absurd. The pupils would soon learn that government actions can have profound effects upon the economy. This government set interest rate ceilings on loans, cut the salary of the "government employee" who had been hired by the teacher during the first week, required the bank to pay ten percent interest on savings accounts, increased government grants, and raised their own salaries. At one point, when the government was about to interfere

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with the freedom of the stock market, a student demanded impeachment! The government officials backed down and began to think more carefully about the consequences of their actions.

To bring the course to a conclusion, I provided the students with a form upon which each would indicate his or her financial situation. It provided for the recording of various assets and liabilities, and for a final statement of net worth. The form was similar to that used by an accountant for a business firm. After all forms were completed, all assets were converted to cash which the students could use during the auction. Of course, those who has been the most diligent, hardworking and clever were able to acquire more goods.

Evaluation

The outcome far exceeded my expectations. Two formal tests indicated that most students had learned the basic principles of the market economy, and could answer questions on such things as supply and demand, banking, the GNP, how profits are made, how government affects the economy, the corporate form of business, and taxation. In the reports that they wrote, many economic terms and concepts were included. In addition to those I had planned to cover, the pupils learned about the balance of trade, the circular flow, inflation and deflation, the Federal Reserve, the gold standard, organized labor, monopolies, the standard of living, and the welfare system. Not only did these youngsters learn a great deal of economics in a short period of time, but they had fun doing it.

APPENDIX TO CHAPTER 3

Good Ideas in Brief: Junior High School Level

BEN TRIMBLE of the *Awtrey Middle School, Acwotth, Georgia,* motivates his seventh-grade mathematics students by relating the math lessons to personal economics. These pupils, who are average or below in academic ability, plan personal budgets, establish a classroom bank and operate a grocery store. The bank uses token currency, but there are realistic checks, deposit slips, receipts, withdrawal forms and books for bookkeeping. Each student gets an account of $500. Of course, careful records are kept for the bank and the store, and Mr. Trimble finds that math skills increase as the pupils engage in these realistic economic activities.

J. CLIFFORD MILLER III of *St. Christopher's School* in *Richmond, Virginia,* has developed activities for teaching some basic economic concepts to eighth graders of above-average intelligence. These activities are included in his U.S. Government course, and provide a four or five-week introduction to the market system, the GNP, the circular flow concept, money and bank-

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Seventh graders in Ben Trimble's math class at Acwotth, Georgia, are dead serious as they go about the business of operating a classroom store.

ing, foreign trade, government finance, inflation and deflation, and the impact of war on the economy. His pupils study the state and local governments as well as the national, spend much time on current events, and play the simulation game "Ghetto." *Life on Paradise Island* by Wilson and Warmke (Scott Foresman, 1970) is used for basic reading. After this book has been read and discussed, the students play the Marketplace game which Mr. Miller finds to be "remarkably effective in putting the students right in the middle of the enterprise economy and emphasizing those concepts that *Life on Paradise Island* emphasizes."* The class is divided into groups representing households, they purchase companies (manufacturing firms, retail establishments and banks), sell services, receive income, buy goods and borrow money in the classroom simulation. The forces of supply and demand make themselves felt, inflation occurs, and some even go bankrupt. After the simulation experience (which lasts about two hours per day for three days), the pupils write essays in which they explain what they saw happening in the simulation from their own vantage points. Mr. Miller's essay tests include questions which require analysis and careful thought, as well as the simple recall of facts. Some examples follow:

- How does war affect the economy of a country? Why?
- The U.S. had its Great Depression in the 1930's, and there is quite often a tendency toward depression after wars. What is a depression? What causes it? How can it be corrected? Of the various alternative "cures," which would you select, and why?

* Marketplace is available from the Joint Council on Economic Education for $75.00.

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ROBERT LEE BAKER, JR., of *Douglas County Comprehensive High School* in *Douglasville, Georgia,* had his ninth and tenth-grade general business classes form corporations to give them an understanding of the operation of a business, competition, division of labor, supply and demand, and profit. Shares of stock were issued and sold, and the shareholders elected such company officers as President, Vice-President in Charge of Production, and Vice-President in Charge of Sales. Company names were selected and "certificates of incorporation" were filed with the principal, who acted as the state department. The corporations manufactured paper flowers and stuffed animals. Job application blanks were prepared for students wanting to work for the firms as salespersons, advertising assistants, production line workers and so on. Each applicant was interviewed by an officer of the corporation. Organizational charts were made, time cards were prepared for the "employees," and advertising campaigns were conducted. Each "employee" was rated on an evaluation sheet, and pay raises were granted on the basis of merit. The workers could also be discharged or transferred for inadequate performance. At the end of four weeks, the money earned by the firms was used to buy consumer games and filmstrips for the general business classroom, but there was enough left over to pay dividends (which ranged from two to 15 cents per share). The students learned about the relationship between costs, prices and profits; saw how consumer demand affects business decisions; experienced the forces of competition in the marketplace; learned how a business functions; developed good work habits; and discovered the importance of working and cooperating with their classmates and teachers.

ROBY E. BACH of the *Union Elementary School* in *McDermott, Ohio,* has developed several interesting ways of teaching his seventh graders about the price mechanism, inflation and other related concepts. First, he ascertained pupil interest through a questionnaire. Probably reflecting their parents' concerns, the children listed inflation as the most serious problem. The students were also aware of soaring meat prices, and increases in the prices of items which they themselves purchased. Games, simulations and simple role-playing were used very effectively. In one role-playing situation, one pupil was selected to represent a farmer; the other was to be the buyer of farm products. Mr. Bach would then state various "facts" (such as that farmers will be receiving higher prices) and each pupil would react by smiling or frowning. The reactions were discussed and analyzed by the rest of the class. This was not only instructive but great fun for the students. Going further, the class held a mock meeting of the National Farmers' Organization. There were heated discussions of boycotts and counter-boycotts, the farmers' financial problems, and the like. Finally, the class played the well-known Market Game as it appears in Gerald Draayer and Roman F. Warmke, Eds., *Selected Readings in Economics Education* (Athens: Ohio University Press, 1969). The pupils also worked in small groups, doing research and writing reports. Applying the concepts to their personal experiences, the students discussed items that they would like to sell. They analyzed the prices of such things as a package of cereal, noting how advertising, packaging, transportation, storage, etc., affected price. The students were able to construct supply and demand curves, and they did extremely well on a formal test of the related concepts.

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CHAPTER FOUR

A Unit on Agriculture for Eleventh and Twelfth Graders

Robert E. Dettbarn
Rich Central High School, Olympia Fields, Illinois

Introduction

Students in our urbanized society have little understanding of the problems confronting the farmer. They show little sympathy for farmers, even though some aspects of the farmer's problem are similar to those faced by many consumers who have limited information and little power in the marketplace. Thus, for the past five years I have included a unit on agriculture in my one-semester economics course for juniors and seniors.

The first step is to have the students view a film such as "Hard Times in the Country" (available from the University of Indiana's Audio-Visual Service), although a recent magazine article dealing with the same problems can be used instead. They will read or hear such terms as cost-price squeeze, elastic or inelastic supply and demand, and perfect or imperfect competition. Discussions are then based upon questions like the following:

- How do you feel about the problems facing the farmer?
- What would you do if you were a farmer to solve the problems?
- How would rising food prices affect the nation's poor?
- What should be done to solve the food problems facing consumers in general?

Answers will usually include everything from complete government control to a perfectly competitive market situation. Student attitudes are then elicited through a short questionnaire. They are asked to indicate agreement, disagreement, or uncertainty in response to such statements as

- Farmers are primarily responsible for high food prices.
- Government should regulate food prices and also subsidize farmers to guarantee their incomes.

They check "yes" or "no" after such statements as

- The government should make up the difference between the low level of

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farm incomes and the national average.
- If farmers have incomes below those of nonfarmers, they should raise the prices of the farm products they sell.

With these introductory activities completed, the students are ready to begin a simulation in which they play the roles of farmers and others affected by the farm problem.

The Farm Game

The students are assigned roles as farmers (15 to 30 individuals), processors (two to four persons), an administrator or an auctioneer. The farmer role can be handled by students of all ability levels. Each farmer is given 120 acres of land which can be used for corn, wheat and soybeans. The farmer must decide how many acres to devote to each crop. He or she then receives $1000 with which to start operations. The $1000 is the beginning balance in the farmer's checkbook. (These are made with ditto masters.) Each farmer also gets a cost-of-production sheet listing the crops and the costs of each on an acreage basis. For example, $175 is the production cost for 10 acres of corn, and this amount is paid to the administrator (who should be a student good at math and or bookkeeping). Upon paying the administrator, the farmer receives a production card. The cards introduce an element of risk, for they tell how much of a yield the farmer will get per acre planted in a given crop.

After receiving the production card the farmer prepares to sell the output. He or she must decide (after multiplying yield per acre by number of acres devoted to a particular crop) how many bushels to sell in an open market situation. Processors bid for the crops. No secret deals are permitted. The farmer instructs the auctioneer on how much he or she wants for the crops. When the goods are sold the processor pays the farmer with a check, and the farmer computes profit (or loss) and records this on a sheet prepared for that purpose. Any farmer who fails to sell the crop must store it in an elevator and pay the administrator a storage fee. Thus, the farmer might have to decide whether it is better to take a small loss in the marketplace than to pay the storage costs. There is a possibility, of course, that market prices will be higher in the next round (year). Naturally, the farmer's objective is to maximize profits over the ten-round period.

Processors should be fairly good students who have a competitive spirit. They buy grain in the open market, and receive sheets telling them how much may be produced, how much it costs to produce it and the price for which their output may be sold to the consumer. (The administrator assumes the consumer's role.) The fixed costs are specified for the processors, but their variable costs are not. The most important variable cost would be the amount paid for the grain. Processors are given $10,000 with which to operate, but they will try to buy the produce at the lowest possible price in order to maximize profits. The administrator buys in thousand-bushel lots from the processors, and charges a fee for storing odd-lots (less than 1000 bushels).

The administrator handles the distribution of materials, keeps records of each person's bank balance on sheets provided for that purpose, clears

checks, and in general acts as both a banker and a consumer. He or she provides factors of production to the farmers and processors (for a price, of course), hands out production cards, and assists the auctioneer by posting prices as they go up or down.

The auctioneer conducts the sales of farm produce to processors. He sells each crop separately in successive five-minute market sessions. Once the opening prices have been established, the processors try to get the farmers to lower their asking prices while the farmers hope that the processors will agree to raise their bids. Poker chips can be used to represent the bushels of each crop.

The market activity lasts from three to five days. At the end, the students compute their profits or losses. In the process, they should have learned the laws of supply and demand, how price is set in a competitive market, how production costs affect price, how profits are determined, how the same individual can be both producer and consumer, and how checks are used. Sometimes there are unplanned outcomes, as in the case of one class in which the farmers attempted to organize a cooperative.

The usual result is that the processors make more money than the farmers, and the students are asked to explain this. Answers may range from such naive statements as "The producers were smarter," to relatively sophisticated explanations of supply and demand situations. The most common conclusion is that farmers are at a disadvantage in relation to the small number of processors (who, in effect, represent an *oligopsony*—a situation in which there are few buyers). They find that an increase in farm output can reduce prices received by farmers and lower their total income.

To wrestle with the question of what can be done about the farmer's problems, the students form small groups and attempt to develop policies. They use a variety of source materials from *The Wall Street Journal* and other current newspapers and magazines. The class is asked to vote on the proposed solutions. Often they tend to favor organization on the part of farmers. Yet, as consumers, they fear that food prices are too high. Supply and demand curves are used to analyze such plans as government-imposed ceiling prices on food. (For instance, the curves may show that a ceiling price on eggs would result in an increase in the quantity demanded while the quantity supplied drops.) We do not stop with these theories, however, but try to determine whether or not the facts in real life are in accord with the theories.

Outcomes

Experience with this approach has shown that students do learn the concepts of perfect and imperfect competition, supply and demand, and other related principles. By engaging in role-playing they develop empathy for people in situations different from their own. Values play an important part in the unit, for the class must make choices on such questions as whether they would give up some of their own wealth to assist other groups of people. They examine government policies in terms of how these policies might affect different groups, and they reexamine their own proposed solutions to see if they are consistent with their personal values.

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The students have consistently scored well on a standardized test of economic understanding, and show particular strength on items dealing with supply, demand, and types of competition. Pre- and posttests are administered, and healthy gains are invariably achieved. A test given at the end of the semester, many weeks after the unit has been completed, shows that retention is very high. The attitude instrument, given again on a posttest basis, usually indicates that the students have become more tolerant of the farmer's position. Interest runs high during the simulation, and many of the basic concepts learned in this unit are applied again and again in subsequent units. Hopefully, the principles and analytical tools acquired during this experience will be retained and used when these young people become voting citizens or active participants in business or the world of work.

Your Trash Makes Our Cash

A High School Recycling Program

Richard G. Robinson
East Carbon High School, Sunnyside, Utah

Introduction

"Utah secondary school students possess a very limited understanding of basic economic principles considered essential to economic literacy by the National Task Force." This was one of the conclusions of a thesis completed at Brigham Young University in 1972 by Gloria W. Barfuss.* She also found that Utah students, even after receiving formal instruction in economics, achieved a mean score significantly below that of a national norming group. Disturbed by these findings, I decided that economics should be taught in a manner that would appeal to student interests. One way of doing this would be to let the students set up and operate a corporation.

A student-operated company in one class would be of limited value, so I approached all teachers at East Carbon High School to explore the possibilities of making this a school-wide project. The principal, Mr. Gregg P. Wakefield, and all the teachers expressed interest in the program and offered

* Evaluation of Student Achievement in Economics and General Business Courses in Utah High Schools, 1970-71. (Master of Science thesis, Department of Business Education, Brigham Young University.)

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to give varying amounts of time to it. This school-wide participation, utilizing the specific talents of each department, is one of the unique features of the scheme.

Today, young people are very much concerned about the problem of pollution, and school projects for the collection of material to be recycled are quite common. In our program, however, we would not only collect trash but use it to manufacture marketable products. Thus, vocational training would also be an integral part of the economics unit. The goals were to help students to acquire skills necessary for success in the world of work, to develop leadership abilities, to encourage participation in the sollution of important current problems (pollution, in this case), to bring about community interest in school activities, and to teach a number of basic economic concepts. The specific economic topics and principles would be those needed for an understanding of how a corporation is established and operated, how goods are marketed, how production costs relate to prices, how profits are made, and how one's personal economic interests relate to those of society as a whole.

Procedures

East Carbon is made up of the three communities of Sunnyside, Dragerton and Columbia, Utah. The population of Carbon County is only about 16,400, and East Carbon has 2,400 of these. Coal mining is the major industry. East Carbon High School (grades eight through twelve) serves the three communities and has between 285 and 295 students. In spite of the relatively small population and the lack of a highly diversified industrial base, the area does afford opportunities to teach important economic concepts. Every community, however small, has economic problems and economic institutions which can be studied and which can serve as useful teaching resources. Indeed, one of the advantages of living in a small town is that personal contacts can be made easily and community involvement can be obtained fairly easily.

Once the students had accepted the idea of setting up a corporation to recycle junk and produce products, the next step was to select a name for the company. We held a contest to choose a name from among the many suggested by the pupils. By asking the Rotary Club to judge the entries, we not only publicized the project but immediately got the community involved. "E.C.H.S. Recycling Co." was the winning entry. The prize was five shares of stock. The five "runners up" won seats on the Board of Directors for their entries.

A local businessman agreed to provide advice in the setting up of the company. Using forms provided by the Utah Secretary of State, we then drafted our Articles of Incorporation. These included the name of the firm, its duration (from September 1972 to May 31, 1973), a statement of its purposes, the number of shares (1,000) to be issued, the par value of the shares ($1.00), provisions for regulating the internal affairs of the corporation, the names and addresses of the incorporators, and the names and addresses of an interim Board of Directors. A President, Vice-President and Secretary were elected.

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The company paid the commercial rate of one-half cent per can to students who would collect them. Receipts were issued, and these could be applied to the purchase of corporate stock. As soon as decisions had been made on what items to manufacture, the company began to take orders. During one evening alone (at a Mardi Gras in the high school), orders totalling $129 were taken. Order forms included spaces for the name, address and telephone number of the customer, the name of the item ordered, the number desired, the size (where applicable), the price, and the amount being deposited. Students found innovative ways of advertising. In addition to the usual word-of-mouth method, public announcements and newspaper ads, one of the drivers in the annual county demolition derby painted an ad for the company on his car. An estimated 5,000 people saw this.

Students worked at various jobs. Some sorted the cans to separate the iron-based cans from the aluminum ones, and to decide which would be melted down and which used for such things as making doll furniture and ornaments. Those in the bookkeeping class served as the corporation's Bookkeeping Department. English classes helped to prepare publicity releases. The math teacher served as advisor to the firm's Purchasing Department, and his classes solved some problems relating to the volume of containers. Weight analyses were made by members of the science classes with the help of their teacher. The industrial arts teacher played a major role in guiding the Production Department. A Design Department was established to prepare attractive designs for the products. Art classes were used for this purpose.

The use of the Production Department's furnace required considerable care and skill. The furnace would be turned on in the morning and used by teams during the day. Some even worked on Saturdays. Two students developed a casting process and trained other workers in its use. Crushed aluminum cans would be put in the furnace for melting. After the slag had been skimmed off, the molten aluminum would be carried by students using tongs to the place where it was to be cast. Although this is a potentially dangerous operation, there were no accidents or even near-accidents. The molten aluminum would be poured into sand molds and cooled. Steak platters and other similar products were the end result.

Of course, the entire operation was far more complex than suggested in this brief description. The rough edges of the platters had to be ground down, and a buffer was used to shine them. Wooden bases produced by other "employees" were cut to fit each platter. (The wooden base was added to prevent hot steak plates from damaging tables and to provide a hand-hold for carrying the plates.) Records were kept of production costs, and these costs naturally became part of the price of the plates. A variety of plates was produced, and since some were of higher quality than others the prices ranged from $1.00 to $4.95. Six of the firm's "employees" did enough casting to acquire sufficient experience to be offered jobs by a commercial company. We also designed and produced medals (with a deer head design) to be used as prizes in a state archery tournament.

Many other items were produced by the corporation. For example, candles were made, using discarded crayon stubs for coloring. Baby food jars

were converted into candle holders. Old cans became doll furniture, which could also be used as pin cushions. Pictures were made from pieces of broken glass. A local bank placed samples of these goods on display.

The Business English class played a key role in operating the company. Here the students learned how to run an office, saw the relationship between office work and the production end of the business, gained experience in clerical and secretarial work, established a filing system, and accepted responsibility for the firm's public relations. They designed and produced letter heads, envelopes, interoffice memo forms, order blanks and stock certificates. Displays of products were arranged with several local clubs and organizations. News releases were prepared for local papers.

As news of the project spread, more and more representatives of the community became involved. Indeed, so many efforts were made on our behalf that the officers of the company decided to award plaques to those who had helped. Among those being recognized in this fashion were the banker and his staff, the publisher of a local newspaper which had printed many stories about the recycling company, a radio station which had broadcast numerous announcements, and administrators in the Carbon School District.

The College of Eastern Utah also became involved in the project. News of the recycling company had reached the College, and a representative of that institution offered to assist the schools in the district with equipment or supplies that could be used in a "mini-business." East Carbon High School had proven that it could operate such a business successfully, but there was a need for a new type of furnace to melt aluminum cans. As a result, a new furnace costing about $1,200 was installed in the school in 1973.

Outcomes

Some of the results of the project have been indicated earlier. This report can only touch upon the highlights, and space limitations prevent the listing of every person who contributed to its success. The extent of community involvement was far greater than had been expected. The Retail Grocers' Association of Utah supported and encouraged our economics programs. Newspapers continually publicized our work. Every department in the school cooperated, showing that the different disciplines can indeed come together in a common effort.

Several days before the end of the semester a meeting of company officers and stockholders was held. They declared a dividend of fifty cents per share to all stockholders. Of course, all bills had been paid and all employees had received wages. A motion was adopted to leave about $50.00 in the firm's account so that the company could begin operations again in the 1973-74 school year.

Each department was able to list a number of accomplishments related to the project. In bookkeeping, the students had learned to maintain a complete general ledger and a subsidiary accounts receivable ledger. They had acquired skill in recording daily transactions, reconciling bank statements, making receipts, preparing financial statements, taking inventories, and computing production costs. In the environmental program our work was rec-

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ognized by the Environmental Protection Agency. There was a noticeable absence of trash in public places, as the students collected cans, glass, food jars, wood scraps and other solid waste to make a wide assortment of products. The activities relating to stocks taught the pupils how the securities market works and how it contributes to our economy. The Retail Grocers' Association presented the school with a check for $1,800 in recognition of the economics that had been taught through the recycling company project. The money was used to grant scholarships to outstanding students.

Student reactions cannot be described in highly objective terms. We do know that many accepted responsibility and worked diligently without prodding from the faculty, that enthusiasm ran high, and that some potential drop-outs found a new purpose and meaning in school. There was clear evidence, too, that experience gained in the recycling company helped several students to obtain scholarships and to qualify for positions in the world of work.

Prices and Resource Allocation

A Unit for 12th-Grade Students of Economics*

Galen E. Wyrick

Governor Mifflin Senior High School, Shillington, Pennsylvania

Background and Objectives

This unit was designed for use in a one-semester economics course for average 12th graders. The activities can be completed in a two or three-week period, and the material on prices and resource allocation should provide students with a framework for the development of other economic concepts. The inquiry approach is stressed, and students are asked to identify social problems which can be better understood if the analytical tools of economics are applied to them. The specific objectives are expressed in behavioral terms, some of which are as follows:

- Students will demonstrate their knowledge of supply and demand forces determining an equilibrium price, when asked to draw supply and de-

* This is a brief summary of a report and supporting material totalling about 45 pages. The full report may be obtained from the Vernon R. Alden Library (Kazanjian Materials) of Ohio University, Athens, Ohio 45701.

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rmand curves based upon figures provided. Proper interpretation of the graph will be necessary to answer the following:

a. The downward sloping demand curve demonstrates what relationship between prices and quantity demanded?

b. The upward sloping supply curve demonstrates what relationship between prices and quantity supplied?

c. What explanation can you give for the relationship between the intersection of demand and supply curves (equilibrium price) and the determination of the long-run market price?

- Students will perceive the differences between the classical market model and the mixed economy of the United States. From a list of characteristics they will select those which apply to the pure market economy and those that are descriptive of most current U.S. markets. (Acceptable understanding is indicated by correctly identifying eight of the ten.)
- After reading passages relating to a business which is causing water pollution, students will respond to the following: "Use economic reasoning to propose a solution to the problem which would benefit the community and society in the long run." They may select one of three possible solutions listed or may develop new ones. A "right" answer is not expected, but students should use sound economic reasoning to organize and justify their answers.

  a. Government involvement by regulations, subsidies, tax incentives.

  b. Workers agreeing to accept wage cuts so that firms may keep costs down while installing pollution control equipment.

  c. Combination of community efforts, such as disposal tanks provided by local industries and citizens working to clean up streams.

Activities

After having studied the fundamental economic problems confronting all societies, the class can turn to a detailed examination of how prices are determined and resources allocated in the U.S. In particular, they explore the mechanism by which we answer the basic questions—What shall be produced? For whom? How much? A review of what the students already know about the market system can be made by discussing a common activity of immediate interest to them. For example, the following questions might be asked.

> "At lunch today most of you will eat in our cafeteria. What motivation is there for you to buy your lunch at school? What alternatives are there? What is the key factor determining your choice among the alternatives?"

The discussion should touch upon want satisfaction, relative prices, convenience, quality of meals, maximizing want satisfaction, and the like.

Now the class is ready to learn the concept of the market model. Some of my students had built model cars, and they were asked to explain the relationship between the model and a real automobile. The answer was that the model shows the chief characteristics by which we identify a car, and that it helps us to see and understand something without actually having to

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examine the real article or to reconstruct it. It was easy, then, to go on to the notion that a model of our market system enables us to study it as it determines prices and allocates resources. Of course, we noted that the model tends to be static while the real-life economy is dynamic.

The conditions which must prevail for a market to be categorized as pure competition were set forth, including product standardization, perfect knowledge, many buyers and sellers, freedom from outside interference, rational behavior, and so on. A Student Worksheet (No. 1) was distributed. This was designed to help them to take notes and to follow the discussions. The sheet contained a space for them to list the assumptions or conditions which underlie the market model, both individual and aggregate demand schedules (in tabular form) for hamburgers, a graph upon which they could draw demand curves, a space for listing the determinants of demand, questions regarding changes in demand, and discussion questions. In responding to the questions regarding charges in demand, the students were expected to show by drawing new curves the effects of the changes listed. For example, they were asked to show what would probably happen to their demand for hamburgers if the following occurred:

- Your part-time job is now paying 50¢ more per hour.
- The price of hotdogs decreases because of a new production technique.
- The prices of hamburger rolls, catsup and mustard increase.

A graph similar to the one above was provided on the worksheet for each question. In answering the first question listed here, for example, the student would be expected to draw a new curve labelled D' to the right of the existing D curve. In response to the other two sample situations given above, the student would probably draw new curves to the left of the original.*

After the students have completed these assignments, a class discussion can be held to be certain that everyone understands why few (if any) drew curves showing a higher quantity being sold at the higher prices, how the

* The reasons for the shifts are fairly simple to grasp. In the first case, the student has more money and can thus afford to buy more hamburgers. In the second case, there is (in technical terms) a "cross-elasticity effect." The price of a common substitute product falls, so people buy more hotdogs and fewer hamburgers. (This assumes that both products satify hunger and are about equally desirable.) In the third case, the price of complementary products rises. Assuming that we want rolls with catsup and or mustard with our hamburgers, the total cost of the hamburger sandwich rises and, according to the law of demand, fewer will be sold.

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substitution effect operates, the impact of income on demand and the like. It is probable that individual curves will differ, and the reasons for this can be examined. Differences in incomes, tastes, values and expectation of future prices are some of the factors to be taken into account. In a summary of this exercise, the class can discuss the consumer's objectives, the problem of scarcity and how to derive the greatest satisfaction with our limited resources.

The next step is to consider the seller's side of the market. Worksheet No. 2 deals with the law of supply and is similar in construction to No. 1. The student is presented with figures on fixed and variable costs for a hamburger stand, the volume of business, and the prices being charged by competitors. He or she is then required to prepare a supply schedule for that firm. An aggregate supply schedule is also provided. From this exercise, the students learn about profit maximization, the relationship between price and supply, and factors affecting the supply curve. Among the latter are such things as marginal costs, diminishing returns and technological developments. Again, the student is presented with situations which should cause the curve to shift, and he or she then draws the new curve on the graphs provided in the worksheet. Several problem situations are included. One example is as follows:

> "The production capacity of a cabinetmaker is reached at 25 cabinets per month. He is using his building, equipment, and labor eight hours a day. Assuming that the workers are paid double time for working four hours each evening, what is likely to happen to costs? What will happen to the supply curve?"

(Note that the absence of details in the above questions can result in stimulating class discussions on the various possibilities.) When Worksheet No. 2 is complete, it will show a market supply schedule for hamburgers. The demand curve is also included, so the class will then be ready to discuss equilibrium price.

To be sure that the students understand the basic principles, different kinds of situations should be presented. For instance, they should be asked to draw simple supply and demand curves and show shifts in curves and in prices which might result from situations such as the following.

- The baby-boom of the 1950's is being felt in the colleges of today. What will most likely happen to the market for textbooks?
- A severe drought hits nearly all wheat farmers. What change will occur in the market price of wheat?
- Anticipating high profits, mini-bike producers turn out 100,000 when only 75,000 are demanded at the price of $137.50. What will be the consequences?
- New tent campers are so reasonably priced that most Americans can now afford to spend a portion of their vacation camping. What is likely to occur in the service market for motel rooms?

A wheat market simulation is a good activity to follow up those that have been described so far. It is advisable to distribute the instructions the day before the simulation is to take place. Sellers will receive white cards

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and white arm bands; buyers will use blue cards and bands. Each seller will receive one order at a time, specifying the amount to be sold and the minimum price per bushel. Of course, the seller will attempt to get a higher price and will not reveal the minimum figure he or she would accept. Each buyer will be instructed to buy a given amount of wheat at no more than a specified maximum price per bushel. Buyers will attempt to obtain wheat at prices below the specified maximums. Whenever a buyer and a seller reach an agreement they report the transaction to the teacher who writes the price on the board. The buyer and seller then get new orders and return to the market to try to execute them.

After the simulation, the students are given the supply and demand schedules in tabular form. They plot the information on a graph, draw curves and discover the equilibrium price. They are also asked to identify the prices prevailing during the last five minutes of the game and the quantities being sold. If there is a difference between the price prevailing during the last five minutes and the equilibrium price on the graph, the students are asked to explain the difference.*

Once price determination in particular markets is understood, the class is ready to learn how prices affect resource allocation. Adam Smith's discussion of the "invisible hand" can be analyzed, using common products as examples. If it becomes fashionable to wear wigs, the rising demand will probably push up prices and profits. New firms will enter the industry and output will rise. Capital equipment, labor and natural resources will shift from other industries to the manufacture of wigs. If the fad for wigs results in the need for fewer hairdressers, some beauty shops may fail. These are but a few of the allocation effects that might be noted.

So far, the class has worked together to learn the basic principles of the market model. Now it is time to reexamine the assumptions made in the beginning (about perfect knowledge, product standardization, etc.), and see how closely the economy actually comes to the ideal model. This can be done by having the students form committees. Each committee does research to explore the facts about the assumptions and determine the extent to which they accurately describe the U.S. economy. They are expected to collect several examples of how each assumption (or condition) applies or does not apply in our economy. The chairman of each committee will report the findings to the class. The students should discover oligopoly markets and how they work, find evidence of product differentiation and how advertising affects consumer choice, show that perfect knowledge is lacking (particularly on the part of consumers), challenge the notion that both buyers and sellers act rationally,† and see that because of such things as government controls there are few markets free from external influences.

A "handout" entitled "America on Wheels" has been used effectively at this point. A portion appears below:

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* For details on the wheat market game, see Myron Joseph, "Role Playing in Teaching Economics," *American Economic Review*, 55 (May 1965), 560-62, and Volume III of *Economic Education Experiences of Enterprising Teachers*, pp. 55-62.

† A useful book for this purpose is Vance Packard's *The Hidden Persuaders* (New York: Pocket Books, 1957).

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Read the following passage critically. Observe those statements which seem to contradict the assumptions made about the market model.

AMERICA ON WHEELS

The "Big Four" this year plan to produce 10,000,000 automobiles. Each company will offer over 35 color combinations with the option of over 100 model variations. Glamorous advertising campaigns already have car orders running three weeks ahead of the delivery date. Engineers have calculated that the new federal safety laws will require some major modifications so that car costs are expected to increase over $200 per model.

Performance claims of all types are being made. The latest economy compact, the *Bison*, claims 28.6 MPG at "normal" driving speeds. In competition, the *Apollo* states that it achieved 30.2 MPG on its latest economy run. The *Aquarius*, competing in the big car class, offers a 10-year, no repair charge, free maintenance warranty. *Socrates*, which provides a similar warranty, also provides coupons with a 10% reduction in price of gasoline.

The public is expected to use credit at an unprecedented rate in buying these cars. Some consumers will forego other necessities so that they can engage in the great American pastime of car buying.

1. Use the columns below to give short phrases which would show that there is a contradiction with the market model assumption.

many buyers and sellers	identical product	perfect knowledge	rational buyers and sellers	complete freedom

2. Reconsider the five assumptions made about the market model. Present a new list of assumptions characterizing the *market-oriented* economy of the U.S. Explain each briefly.

3. Organize *your own assumptions* so they indicate how prices are determined and resources allocated in the U.S.

An economics classroom need not be devoid of a touch of humor. The "handout" also included the following poem and the questions calling for an analysis of its economic implications.

The Case of Hypothetical King Henry O.*

Who thought that prices should be low.
He thus proclaimed that meat would be
Sold at just a nominal fee.
Instead of much more than a buck,
Sirloin steak would sell like chuck,
The price of chuck steak also fell

* From Philip P. Robbins, *Study Guide to Accompany Introductory Economics* (Lexington, Mass.: D.C. Heath, 1972), p. 11.

To just where hamburger might sell.
And so it was and so we see
The start of an economic spree.
Now as you study the change in price,
What were the effects of the king's advice?
Where fit demand and supply and time,
And other things that might also rhyme?

1. What effect did the king's tampering with the price mechanism have on the sales and supply of the various kinds of meat?
2. Do you think sirloin steak was available to all those able and willing to pay for it? Explain your answer.
3. Assuming that the king's objective was to lower the price of steak so that more people could afford it, would there be a more effective way of *using the price mechanism* to achieve this aim? (Consider some *recent* methods.)

In conclusion, the students recognize that ours is a mixed economy, but that we still rely heavily upon relative freedom in the market place. The culminating activity is to have them select a major current problem, such as pollution, slums, unemployment or discrimination, and explain how it would be handled in the market economy. Finally, they show how a country with a "mixed" economy might best utilize its resources to overcome this problem.

Evaluation

The unit test which I constructed includes not only items requiring the simple recall of the facts and principles, but items which demand application of the concepts to new situations. The test calls for the student to draw curves based upon schedules provided, to explain equilibrium price, to show when and why curves would shift, to give examples that would explain the way in which the "invisible hand" operates in allocating resources in a free economy, and to answer a number of multiple-choice items on relevant principles. The following essay question is the last item in this test.

E. Read the following passages carefully. Study the three opinions. Using sound economic reasoning, propose a solution which would benefit the community and society in the long run.

BLESSING OR CURSE! ! !

A new textile plant had located in Gadsville. Unemployment had been high for many years and many of the young high school graduates were leaving to find their fortunes elsewhere. The plant was to employ 500 men and women. It purchased most of its raw materials, equipment and supplies from the local area. Taxpayers were delighted because the new firm contributed greatly to the support of their schools and community services.

Unfortunately, fishermen were the first to realize the cost of progress. Hundreds of fish lay dead on the sand bars, the water was warm and discolored, and the stench was overwhelming. Early suspicions were confirmed when it was disclosed that disposal pipes ran from the plant to the stream.

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What had once been a beautiful stream was now turned into a dead, ill-smelling blemish. The recreation and beauty it had offered was now in jeopardy. Opinions became polarized into three camps:

Management at the plant—"The costs to install new filtering equipment would be prohibitive. To stay competitive in this industry we must keep our costs down. Plants in other towns don't have to install this equipment, so we can't either. We will have to relocate if we're forced to install the equipment."

Militant conservation group—"This plant is destroying our environment. It took nature millions of years to build what these profit-seekers have destroyed. Our very lives are endangered by these businessmen. They must get out!"

Townspeople—"We are bewildered. So much was accomplished when the new business moved here—everyone was happy. Now what do we do?

In addition to the unit test tailored to the content of the lessons, the standardized and nationally normed Test of Economic Understanding has been used on a pre- and posttest basis. With minor exceptions, significant gains have been achieved. Student essays indicate that the concepts have been learned and understood, and the behavioral objectives have usually been reached. Most important, perhaps, is the fact that student interest in economic issues and in economic analysis as a tool in helping to understand current problems has been aroused. Many have voluntarily submitted papers in an essay contest sponsored by Americans for the Competitive Enterprise System, Inc. This year, two of my students captured the first and third prizes, and last year my pupils won all five of the prizes. Newspapers have given generous coverage to these efforts. It seems clear that the methods described in this report have been successful in improving the economic literacy of high school students.

An Elective Course in High School Economics

Vernon J. Frank

Great Falls High School, Great Falls, Montana

Introduction

Great Falls is located in the midst of a great grain, meat and lumber production area. Those who work here are a strong and sturdy people, of

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middle class America, with a firm belief in education. Therefore, Great Falls High School offers a wide variety of courses, many of which are designed to help students to prepare for college. Yet, we have not lost sight of the fact that there are large groups of students who are not college-bound and who need to be provided with the necessary skills for living a full and productive life. Our one-semester elective economics course must serve both the terminal and college-preparatory student, so it is designed to challenge the most ingenious youth while at the same time providing others with a working knowledge of economics. Thus, a general aim is to help young people to acquire the analytical tools of economics that will help them to relate to life as they find it, and to cope with a society that is not fixed but which calls for constant adjustment to changing situations.

One of the specific objectives of the course is to give students an understanding of the price system and of competing economic systems. Of course, a great many of the basic economic principles must be taught if we are to achieve this goal. Another aim is to instil an understanding of competition, not in an abstract sense but as it applies to everyday life. To accomplish this, we create a classroom atmosphere which reflects the realities of the market economy—the students are looked upon as producers whose rewards are based upon their output. They are given a great deal of freedom to learn and to create in accordance with their own needs and abilities, with positive incentives rather than strict guidelines being used for motivation. Individual effort is encouraged in order to maximize learning in accordance with ability and skill levels. Another goal is to acquaint the pupils with as many different resource materials as possible, in the expectation that they will acquire the habit of consulting a variety of sources in the pursuit of information.

Instructional Methods

In brief, the approach was to equate student work with "production"—production that would be rewarded with paper currency payments. No assignments were made, and no formal tests were given. With the threat of assignments and tests removed, students acquire a feeling of freedom that is conducive to enjoyable learning. Nevertheless, an incentive to work and to learn must be provided. In real life, one produces so that one's output can be exchanged for the goods and services produced by others. Money is the usual medium of exchange. So that the complexities of the market economy can become a part of the classroom learning process, money is given a major role in the course. The student who is interested in grades must "buy" them in competition with all others in the class. A paper medium of exchange is thereupon introduced, and the student is informed of the legal ways of earning this "money."

The result of this system is to create an atmosphere of challenge, but without tension. As in real life, each individual is able to work for and to earn any desired end product. Each person makes choices regarding the amount of time and energy to be spent on the course, and each is limited only by his or her own abilities and drives. There will be no resentment of lengthy assignments and "unfair" tests mandated by the instructor. The

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teacher gives a detailed explanation of the various means of production by which students can earn the wherewithal to acquire the desired end product —a grade of their own choosing.

The use of available materials is one key means of producing for payments. Although the course is not textbook-oriented, students are encouraged to use several college and high school level texts as reference works in preparing for discussions or in amplifying classroom presentations. Similarly, many books of cases and readings are available. Fifty books, both hardcover and paperback, dealing with the market system are on hand and are among those which the student is strongly encouraged to read. This is supplemented by a list of hundreds of books in the library that pertain to economics. Over 100 selected readings have been mimeographed for distribution. Each presents a brief but penetrating analysis of an economic topic, such as inflation, wages, employment or trade.

Self-study units have been carefully prepared. One such unit is based upon Harry Heckman's *The Economics of American Living* (Chicago: Rand McNally and Company, 1963). There are "thought questions" for each chapter and "think sheets" which attempt to anticipate the direction the students' questions will take and which record the appropriate answers. The "think sheets" are substitutes for the teacher, for the work of the units is done outside of class. After completing each unit the student obtains a set of questions from the instructor to see if he or she has really understood the material it covered. Another unit was derived from booklets and tapes developed by the Chamber of Commerce. Again, there are "think sheets" explaining the various economic concepts and providing answers for typical student questions. The units vary in level of difficulty. Some use college material, such as Robert Bingham's programmed text *Economic Concepts* (New York: McGraw-Hill Book Company, 1969). These challenge the brightest students, provide for immediate self-testing and feedback, and in effect serve as mini-courses.

Audiotapes of discussions and speeches given by noted economists regarding such specific areas as consumer problems and labor economics are made available in an audiovisual center and can be used during any day of the school year. Films are shown not only to the entire class, but to small groups and even to individuals. Individual research projects using the community at large as a resource are always encouraged and often produce remarkable results. The research projects usually apply some economic theory or principle to a particular local situation, such as the impact of supply and demand on a department store or the employment practices of a given group of businesses (such as garages). Frequently, students apply the economic principles they are learning to conditions they have observed in their travels. For example, one individual gave a slide presentation of a trip to Berlin in which the market system was compared with the command economy and illustrated by what had been seen in East and West Berlin.

Group projects are useful, but they are somewhat limited because of the difficulty in observing and measuring group output as opposed to individual productivity. An example of a successful group project is the "stock investment club." First, the students must become acquainted with the market system in general before they learn about this particular market, the stock

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market. Once they understand the role of stocks in our economy and the working of the market place, they elect their own stock brokers. These two or three individuals are sent to confer with professional brokers and return with the names and technical information on several recommended corporations. The student brokers give a presentation to the class, and the class votes on a stock. Students may voluntarily contribute a small sum so that several shares of stock can be purchased. In effect, the class then becomes the owner of the stock. In addition to this, students are encouraged to select a stock or two which they believe will do as well or better than the one purchased by the class. These selections should be based upon study and research, and some even visit local brokers before deciding. They make records of such things as price-earnings ratios, and each day they chart the progress of their selections. Workbooks produced by the New York Stock Exchange are also used. Students may also form corporations, raise money capital by selling stock, and produce a product or service for sale. The classroom "currency" in use can be used for these transactions.

Among the many readings that are encouraged are such periodicals as *U.S. News & World Report, Business Week*, and *Changing Times*. Government publications and reports are on hand, so that the latest figures on the Consumer Price Index, the GNP and other important measures can be obtained. We also prepare our own economics dictionaries, each concentrating upon a different area of economics (such as international trade) and each is mimeographed for general distribution.

Although tests are not required, some students express a desire to take them. Thus, several tests are available, covering the material that has been studied or which can be found in the readings. The taking of a test is considered a productive effort, and the student is "paid" accordingly. Slide presentations, essays and book reports are also rewarded. All such effort makes the individual better able to purchase the grade he or she wants, for each grade is in scarce supply. When the student understands that all resources and wealth are scarce, and that the desire for grades is similar to the desire for wealth in the real-life economy, the basic motivational work has been done. From this point on, all the teacher has to do is to remind the students from time to time that they are personally affected by economics, and that an understanding of the basic principles will help them to improve their own lives and the society in which they live.

Each day, the instructor should start by collecting the evidence of pupil production and making the "payments" to those who have submitted proof of their output. In this way, there is a constant renewal of the motivational aspects of the scheme and the teacher has a daily indication of individual progress. Most of the work is done outside of class, so that class time can be used for lectures and discussions, and so that the work of individual students can be shared with the entire group. Thus, individual effort and classroom sessions complement and reinforce one another.

Taxation is one of the realities of life, and the classroom experience should reflect this. Taxes are levied each week, and they range from fixed amounts to highly progressive rates. The taxes for any given week are announced in advance, and it is fascinating to see the impact that they have. For example, students will look for loopholes and will postpone the record-

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ing of a high level of output during a week in which production is subjected to a high tax. Of course, the students learn about the various kinds of taxes and their effects on different groups.

Another possibility for this classroom economy is to have a retirement program. The "retired" students can be paid a small amount which provides for a meager existence (that is, a low but passing grade). Of course, students who are satisfied with low grades may do little or no work during the last few weeks of the semester. Some educators may object to this possibility, but it is not unlike the situation in traditional classes. A lazy student may continue to be lazy under this system, but if there is not enough in the course to arouse his or her interest and create an incentive to learn, then there is little point in forcing the individual to work. My experience has shown that this method usually does stimulate the pupil and arouse more genuine interest than threats and coercion.

The study of the Gross National Product becomes more meaningful when a classroom GNP is derived by using the weekly incomes of the students. Per capita income can be computed as well, and projections can be made for the future. The instructor can show how fiscal policy works by changing taxes and having the class note the impact on the GNP. (For example, tax rates can be changed, a property tax can be placed on student notebooks, and so on.) Inflation can occur very easily. This may be spontaneous, or it may be engineered by the teacher simply by giving "money" to individuals to stimulate their spending. The consequences of price increases will soon be felt, as the students see the real value of their savings diminishing. Concern over inflation often becomes very intense, for in weekly "grade auctions" the students experience the loss in purchasing power. This concern can serve to motivate a study of banking and monetary policy.

The study of money and banking would not be complete without examining interest rates. Since students may borrow from one another, interest rates take on considerable importance. They soon learn some of the factors that cause rates to change (such as a high demand for borrowed funds), and a central bank can be established. This helps them to understand the workings of the Federal Reserve System, as discount rates, reserve ratios and open market operations are employed to control the "chartered banks" that appear in the classroom. Students sometimes find themselves caught up in excessive consumption and have to produce more in order to repay borrowed money plus interest. And, of course, this increase in production simply means that more learning is taking place.

One of the favorite activities for the last week is a complete reversal of the market system. A command economy is established and income is redistributed. Needless to say, this often results in heated debates about the "fairness" of the welfare state and the collectivist economies.

By the end of the semester, the instructor has a complete record of the productive efforts of each student. Each individual has been evaluated continually. In spite of any "losses in purchasing power" that might have occurred because of "inflation," and the simulated command economy in which income was distributed on the basis of "need," the student who has worked and progressed will be rewarded with a high grade while the nonproducer will end up at the bottom of the ladder.

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Evaluation

Some will wonder how evaluation can occur without formal tests. Actually, it is very simple. Everyone is being evaluated in some manner, every day of one's life. In some cases there are tangible rewards such as money, promotions or better positions. In other cases the rewards are intangible, such as the reputation one acquires for being productive. People are constantly evaluating one another, and in our economics course the students were continually evaluating and being evaluated. In the "mini-economy" of the classroom the student had to "play the game of economics" in order to survive and prosper. Successes in the class were evidence that individuals had listened, read, engaged in productive research, and learned. Much of the evaluation was on a person-to-person basis.

Yet, in the academic setting, one cannot escape the demand for evaluation that can be quantified. Thus, total "dollar earnings" were representative of points earned. Written work and oral reports were judged with care to determine the extent to which the student had mastered the material covered. Most students read from six to ten books during the course, in addition to dozens of other readings. They viewed many films and listened to numerous tapes. The self-study units they completed were the equivalent of short introductory courses. An evaluation should also attempt to assess the effectiveness of the course. Although the taking of tests for individual evaluation purposes was voluntary, standardized tests were administered at the end of the semester to help me to determine the impact of the course. The class achieved an average score of 79 percent—much higher than one would expect, even if the standard textbook approach had been used.

In terms of the student learning and output that can be measured, the course was indeed a success. Equally important, however, were the less objective factors. It was clear that the students were having fun in the classroom. They realized that they were not learning solely to please the instructor but rather for their own personal satisfaction. When this is the case, more learning takes place. The students were asked to write comments about the course, and these were almost completely favorable. The following is a typical student reaction.

> "I think the economics course . . . is without any doubt one of the most interesting and useful classes in the state. . . . If I were allowed to take only one class during my whole high school period it would, without a doubt, have to be economics."

APPENDIX TO CHAPTER 4

Good Ideas in Brief: High School Level

SISTER MARION JOSEPH GERL, C.S.J., of *St. Joseph Academy* in *Green Bay, Wisconsin,* has developed a number of interesting activities for her 11th and 12th-grade Consumer Economics course. She used an actual

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experience of her own as a case study. After failing to receive a $3.95 knitting tool which she had ordered by mail, she wrote to the company but received no reply. She then contacted the Better Business Bureau, the editor of the magazine which had advertised the product, the U.S. Postal Service, and the Consumer Relations Dept. of the Green Bay Chamber of Commerce. After four months of waiting, writing, telephoning, etc., she received the tool. The class followed what their teacher was doing, step-by-step. The cost (not including telephone calls, some transportation expenses, and her own time) was computed to be $20.50 by the time the matter was settled. Thus, the $3.95 item actually cost a great deal more because of the necessity of writing letters, making copies, paying the Post Office a fee for a copy of her money order, and the like. (If one also considers the time, effort and money expended by those attempting to assist the teacher, the real cost to the economy as a whole was even greater.) Sister has also developed several crossword puzzles using economics terms. These are useful not only as learning devices, but can serve as tests as well.

ELIZABETH H. ALLEBAUGH *of Broadway High School, Broadway, Virginia,* teacher a year-long elective economics course for 11th and 12th graders. She motivated her students for a month-long study of agriculture by showing them how they are personally affected by rising food prices. (When prices at their favorite hamburger stand rose, they wanted to know why.) A sound filmstrip entitled "The Farm Question" provided background on the basis of the farm problem, government programs, costs of production, farm organization, and differing viewpoints on the problem. Library research and class discussion then reinforced and extended the information obtained from the filmstrip. The manager of a poultry plant served as a valuable guest speaker and resource person. After further class discussion in which some of the analytical tools of economics were applied to agriculture, the students were ready to go out and interview resource persons in the community. These included farmers, feed store operators, food wholesalers, retail grocers, restaurant owners, brokers, a county agent, and many others affected by agricultural problems. Questions were planned in advance, and other questions were raised in the course of the discussions with the resource persons. Some students also took photographic slides and taped the interviews. These were used later for classroom presentations. Studies were made of automation in the dairy industry, of grocery store prices, and of the Russian wheat deal, among others. Such economic topics as productivity, the balance of payments, the commodities and securities markets, inflation, allocation of the factors of production, supply and demand, elasticity, the GNP, monetary and fiscal policy, and the Malthusian theory were related to agriculture during this unit.*

* For additional information on Mrs. Allebaugh's teaching techniques, see Volume 10 of *Economic Education Experiences of Enterprising Teachers*, pp. 57-61, or request copies of her complete reports from the Vernon R. Alden Library (Kazanjian Materials), Ohio University, Athens, Ohio.

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CHAPTER FIVE

Economics and Methodology

A Freshman Course

Frank J. Bonello, William I. Davisson, Kenneth Jameson and Frank J. Navratil
University of Notre Dame, Notre Dame, Indiana

Goals of the Course

Economics and Methodology was offered for the first time to freshman students during the 1972-73 academic year. The course was designed to achieve three specific goals: (1) knowledge of content in economics, (2) understanding of the general process of scientific inquiry, and (3) mastery of the tools of scientific inquiry as practiced in economics.

Aside from the desire to deal with the economics content of the freshman year, we wanted to teach students a combination of skills and content that would be a significant contribution to their liberal education. Within this broader objective, knowledge of economics is important because through such knowledge students achieve a better understanding of their society. Thus major portions of micro and macroeconomics were taught during the two semesters. But content alone is not enough. Many studies have shown that much of the content of economics is retained by students for only short periods of time. We wanted to have a longer-run effect. Second, typical content material may not treat certain topics which are of concern to the student. Realization of this led us to add the second goal, understanding of the process of scientific inquiry.

If students can understand and indeed carry out such a process they should be able to apply the same scientific method when they attempt to investigate problems of their own choice. The opportunity to undertake such investigations was given within the course at the end of the second semester. It is likely to reappear rather frequently as these freshmen complete their undergraduate education. The addition of this goal served several other purposes as well. Because the process of scientific inquiry was applied to selected economic problems, further reinforcement of economic content was achieved, and since the process was repeated several times during the second semester, knowledge of the process and economic content would be retained for longer periods of time. Finally, because the process

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was generalized, students could extend both themselves and the concepts beyond the bounds of the course.

If students are to undertake scientific inquiry they must have the tools to complete it successfully. This implied the third goal of the course—mastery of the tools of scientific inquiry. The choice of tools was not difficult. Though there exists a variety of possible techniques which are used in economic research, e.g., questionnaires, institution analytic tools, and mathematical logic, much of the work done by economists consists of hypothesis-testing, using empirical data. The relevant techniques are data collection, data manipulation, and the use of statistical testing. It was the task of the lab, particularly in the first semester, to familiarize the students with these techniques. Computer programming was taught initially to facilitate the students' handling of large amounts of data. But the statistical testing techniques were also taught by having the students write computer programs which incorporated the various tests. By the second semester the students were able to write programs to manipulate 1970 census data and to replicate hypothesis-testing studies which had earlier been carried out on 1960 census data. In this way the computer did become a "lab" for learning economics.

Description of Steps and Procedures

During both semesters, the students' time was divided between two 50-minute lectures and one 2-hour laboratory period per week. The overall coordination of the course rested on the lecturer working closely with the two lab instructors (there was one lecture section and two lab sections). The diagram on the next page illustrates the organization.

As indicated, the first-semester lectures centered around three different topics. The first was Philosophy of Science. Under this umbrella numerous questions and problems were posed: What is scientific activity? What are its processes? Its objectives? What are the Natural Sciences? The Social Sciences? The Humanities? Are these three broad academic divisions different in terms of objectives, subject matter and/or processes? What is an hypothesis? How are hypotheses formulated? How are they tested?

The second topic for the first semester was the Social Sciences. Here the major objective was to give the student a more specific grasp of both the content and the scientific methodology employed in three specific areas: political science, economics and history. As a final subtopic the question of whether or not the social sciences are inferior to the natural sciences within a scientific context was addressed. It was also at this point that the students and lecturer developed a scheme for representing the process of social science inquiry as a series of steps: formulation of a problem; reformulation of problem and relation to known data and known studies; development of model and formulation of hypotheses; testing of hypotheses based on collected data; conclusions and reformulation for further study.

Economics represented the third and final topic for the lectures, beginning in the ninth week and continuing until the end. Initially, straight content in terms of conventional micro and macro theory was presented. With a focus on macro, the question of scientific methodology was again attacked: What is a macroeconomic hypothesis? How are the hypotheses

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First Semester

Time Period (weeks)	Lecture		Lab	
	Topic	Purpose	Topic	Purpose
1	Philosophy of science	Understanding of the scientific process	Computer programming	Familiarization with computers, and teaching of computer language
2	"			
3	"			
4				
5	Social science	Appreciation of the meaning of social sciences		
6	"			
7	"			
8	"		Statistics	Develop tools for the testing of hypotheses
9	Economics	Content knowledge in the macro area		
10	"			
11	"			
12	"			
13	"		Testing hypotheses	Carry out elementary data manipulation and hypothesis testing on macro data
14	"			

Second Semester

Time Period (weeks)	Lecture		Lab	
	Topic	Purpose	Topic	Purpose
1			Search & retrieval	Collection of data
2	Education and earnings	Theory behind chosen replication	Education & earnings	Replication of process of inquiry used in studies (use of research tools)
3				
4				
5				
6	Migration	Theory behind chosen replication	Migration	Replication of process of inquiry
7				
8				
9	Economic differences between states	Theory behind chosen replication	Economic differences between states	Replication of process of inquiry
10				
11				
12				
13	Other economic topics	Broaden content knowledge	Student-chosen empirical study	Use of process of inquiry on topic of own choice
14				

formulated? How can the hypotheses be tested?

The first-semester laboratory sessions were also grouped into three major topics. The first was Computers and Computer Programming. The objective here was to give the student an ability to use computer facilities. The range of programming knowledge established was determined by the two other topics.

The second topic was Statistics. Here such elementary statistics as measures of central tendency, measures of dispersion, tests of significance, and regression analysis were discussed. What are they? How are they calcu-

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lated? How are they used? Students were given data which they analyzed and in most instances wrote a program to calculate the various statistics. This continued the development of programming skill and laid the basis for the next topic.

The third laboratory topic was Hypothesis-Testing. It was at this point that the lectures and the laboratory sessions came together: the lectures yielding macroeconomic hypotheses, the laboratory sessions allowing the student to test the hypotheses using programming skills and statistical tools. In this way the topical material which had been presented in an abstract form was made directly tangible. In terms of the learning process, it also forced the student to bring together the topics covered in the semester and to "learn by doing."

It might be useful to take a specific example of the interrelationship between the lectures and the lab during the final part of the first semester. In discussing macroeconomic theory, the concept of the consumption function was introduced. The lectures established that at a theoretical level there are several variables which might affect consumption expenditures. Theory, however, offers no unequivocal answer to the question: What single variable best explains consumption behavior? Given that theory does not answer the question, the scientist must explore empirical evidence (in effect exploring alternative hypotheses regarding the determinants of consumption). Rather than simply reading the results of previous empirical investigations, the students turn to the computer and employ MACRO, a timesharing regression package. MACRO is a regression routine which can handle input data, and it also contains macroeconomic time series data from 1948 through 1970 for 46 different variables, including personal consumption expenditures. The students tested alternative variables to see which one "best" explains consumption behavior. Possible variables included total disposable income, interest rates (Treasury bill rate or the Aaa bond rate) and wealth (as represented by Standard and Poor's 500 Stock Index). If the student wished to test still other variables (perhaps advertising) he or she had the option of collecting and utilizing these data.

Clearly, at this point the student was bringing all the elements of the first semester together. Philosophy of science was underscored by generation and testing of alternative hypotheses, economics content was reinforced by actual examination of data, computer programming was necessary to run the program, and statistical knowledge was used in evaluating the evidence on the competing hypotheses.

The first semester also added an additional dimension to undergraduate education, for there seems to us to be one significant reason for using the computer that is not related to the academics of a particular discipline. The computer and computer/electronic technology is becoming ubiquitous. The use of the computer in the classroom will introduce the student to its potential and limits in a very real way. This will help the student to develop an informed evaluation of the computer as it will affect him and his life. Our approach helped to make the computer like the library of a university, a tool used to serve specific purposes or to solve specific problems as they arise.

The first semester was important in its own right, achieving in part the

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three general objectives of content in economics and social science, knowledge of modes of scientific inquiry, and equipping with the tools of science. But it was also important in setting a context for the second semester.

The second semester had a single theme: to replicate, using 1970 census data, previously published studies which had used 1960 data. The basic thrust of the lectures was to explain the theory underlying the previous studies, and the labs simply represented the environment in which the replications took place. Indeed, the second semester was the analogue of the conventional science course with lectures devoted to theory and experiments (replications of previous experiments) used to expose the student to the nature and equipment of experimentation (hypothesis-testing).

During the second semester the combined objectives of the lectures and the labs were again threefold. First, by studying the theory involved in previous studies, further content within economics was learned. Second, in the actual process of replication, further knowledge and appreciation of the process of scientific inquiry was obtained while additional statistical and programming knowledge and skill were developed. Finally, the constancy of economic relationships was examined. For example, for a specific hypothesis, a result from a previous study might not be confirmed. This immediately brings up the question of why the same result does not hold, and in this way the student may better understand the difference between the "immutable" nature of physical science laws and the "mutable" nature of social science laws.

Three different types of studies were replicated: (1) a study of educational levels of the population and their relationship to income, (2) a study of the reasons underlying migration patterns for selected standard metropolitan statistical areas (SMSA's), and (3) a study of the causes of economic inequality across states. In addition, students completed a paper on some other topic of their own choice. The Fourth Count Housing and Population summaries for the 1970 census for both States and SMSA's were available on tape.

An example of the procedure used in dealing with topic (1) above, education and income, indicates more precisely the approach which we took in the second semester. The lecture dealt with the economic theory related to the specific topic. In the present case this consisted of the studies on the effect of education on income as well as an introduction to the economics of discrimination. The empirical literature in the area was also summarized.

The main focus of the course at this point, however, was the laboratory. There the students actually utilized the census information from the Fourth Count, 1970, to examine the relationships in the topical area. Their first assignment was a description of the relationship between education and earnings or income in various racial groups. They followed the general approach taken by Walter Fogel in an article using 1960 census information ("The Effect of Low Educational Attainment on Income: A Comparative Study of Selected Ethnic Groups," *Journal of Human Resources,* December 1966). The lab assignment asked them to carry out three specific operations: to use a search and retrieval program in batch mode to cull from the 1970 census tapes the data needed for the description; to summarize these data using descriptive statistics (computed either from prewritten

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programs, from their own programs, or by hand); to write up their results indicating the relation with those which existed in 1960.

The second assignment in this area followed the same general format; however, in this case the students were asked to test certain hypotheses within the framework of a causal model. This was the one used by James D. Gwartney with 1960 census information ("Discrimination and Income Differentials," *American Economic Review*, June 1970). Having assessed the data necessary and having been provided certain data not available on the census tapes, the students utilized a linear regression package to test the model. Their write-up assessed the success of the model in describing the data and a comparison with the results for 1960 to allow assessment of the stability of the relationships noted.

The educational output from these investigations should be apparent. From the lecture and the lab write-ups the students gained knowledge of the theoretical and empirical content of the human resource area of education, earnings and discrimination. In carrying out the actual replications, they gained a direct experience with the scientific process exemplified in the articles as well as developing the tools which have been found useful in dealing with the data in the area. An interesting result of this topic appeared when Prof. Jeffrey Williamson of the University of Wisconsin visited the class to talk about his and Leonard Weiss' study on black migration and education ("Black Education, Earnings, and Interregional Migration: Some New Evidence," *AER*, June 1972). Upon discovering what the students had done in their replications, he ended the session by asking them if their results had borne out his own. It is not often that an economic researcher can ask a group of freshmen if their results confirm his own.

Identification of Resource Persons, References and Teaching Materials

Four persons were responsible for the course. Frank Bonello delivered the lectures during both semesters. Frank Navratil and William Davisson taught laboratory sessions and wrote the first-semester lab manual. Kenneth Jameson wrote the second-semester lab manual and gave frequent lectures during the second semester.

Teaching materials included the specifically prepared lab manuals, and during the first semester two texts were assigned: *The Philosophy of Natural Science* by C. Hempel and *National Income Analysis* by C. Schultze. The articles replicated during the second semester included W. Fogel, "The Effect of Low Educational Attainment on Income: A Comparative Study of Selected Ethnic Groups," *Journal of Human Resources* (December 1966); J. Gwartney, "Discrimination and Income Differentials," *American Economic Review* (June 1970); A. and K. Tacuber, "The Changing Character of Negro Migration," *American Journal of Sociology* (January 1965); D. Kaun, "Negro Migration and Unemployment," *Journal of Human Resources* (Spring 1970); J. Conlisk, "Some Cross State Evidence on Income Inequality," *Review of Economics and Statistics* (1967); D. Verway, "A Ranking of States by Inequality Using Census and Tax Data," *Review of Economics and Statistics* (August 1966).

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Evidence of Learning Experience and Achievement

Given that the course was designed to achieve both content and behavioral objectives, it is rather difficult to assess completely its effectiveness. However, there is a series of indicators which taken as a group support the presumption of success.

The macroeconomics content of the first semester, to a degree, parallels that of most macroeconomics courses. Thus the Test of Understanding in College Economics (TUCE), Part I, was employed to measure effectiveness in this area. Form A was given as a pretest during the second class meeting, while Form B was given as a posttest as a part of the first-semester final examination. Thirty-four of the 35 students who completed the first semester took both tests. The pretest yielded a mean of 13.94 and a standard deviation of 3.99. The posttest yielded a mean of 19.91 and a standard deviation of 3.87. Comparison with the norm data available as part of the TUCE package reveals that our students scored better on both tests but in neither case was the difference statistically significant. However, given that our students were spending less than 40 percent of first-semester class time on economic content and given that they learned anything at all about Philosophy of Science, Computer Programming and Statistics, then the first semester was successful.

To support our assertion that the students learned computer programming, we might mention the requirements that to pass the course students had to program a linear regression based upon an algorithm provided to them. This was the most advanced programming assignment, and all students were able to complete it. Another indicator of success is that four of the students who completed the course are employed this summer as computer programmers.

With respect to the second semester, students were required to replicate several studies as well as complete their own independent study using the computer and portions of the census data, following the scientific method they had been taught. Their papers indicated success in this area.

We have elaborated on the various areas we undertook to teach in the course and the methods we used. They are extensive and sophisticated in both cases. It might seem a valid question at this point whether the course was far beyond the capabilities of the freshman students. We can say definitely that it was not above their level; in fact, the course has made us think that often universities and colleges underestimate the ability of students. First, it was a two-semester course and students were under no obligation to continue it the second semester. However, 29 of 35 students did continue, obviously indicating that they did not feel it was above their capabilities. The same indications are true from the course evaluations filled out anonymously by the students. They gave an overall ranking of 3.1 (out of a maximum of 4.0) to the course. Another indicator perhaps is that of the 29 students who completed both semesters, 10 have decided to major in economics. This is far higher than the usual rate of about 8 percent. But the best indicator as far as we are concerned, and one that does indicate that the three goals of the course can be attained is the quality of the student papers.

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A Training System for Graduate Student Instructors of Introductory Economics

Darrell R. Lewis and Charles C. Orvis
University of Minnesota, Minneapolis, Minnesota

> College and university teaching is . . . the only profession (except the proverbially oldest in the world) for which no training is given or required.
> —Jacques Barzun, 1968.

This paper reports on the effectiveness of a three-part training system developed at the University of Minnesota for assisting graduate student instructors (GSI) of the introductory course.

Historically, the University of Minnesota (along with most other large universities) has made extensive use of graduate students in the teaching of undergraduate economics. There are no prerequisites for teaching the principles course other than being enrolled as a second year graduate student in economics and being eligible for financial aid. Until three years ago, the department simply provided a syllabus, a textbook with instructor's manual and section assignments with room numbers, and turned the graduate student instructors loose in the classroom.

However, during the past three years an integrated series of student evaluations, videotaped classroom observations and instructional seminars have been developed for training and assisting the 22 graduate students who are providing the instruction for 44 sections of the introductory course at the University of Minnesota.

In the fall of 1970, in response to a request from the Graduate Economics Club as well as the Economics Department's own desire to improve instruction, a series of departmental seminars on the teaching of economics for all new GSIs was initiated. Simultaneously, the possibility of videotaping individual instructors was announced by the University's Radio and Television Department. Since this seemed to offer unexplored possibilities for the improvement of instruction, the project was integrated into the seminar concept. Approximately 20 GSIs and senior faculty were videotaped, critiqued and reviewed by selected members of the department. Some of the tapes were also used as part of the seminar—to show others the benefits of videotaping and to demonstrate various teaching techniques. A student evaluation questionnaire (with specific instructor performance criteria identified) was also administered to each GSI's class to provide additional feedback to each instructor.

Throughout the first year both participation and feedback from the GSIs had been excellent. However, a basic question remained: Were we having

The authors wish to acknowledge the invaluable assistance in the developmental stages of this project by John Scarbrough and Ray Rieeman, Research Fellows at the University of Minnesota.

any measurable impact on both student and instructor performances in the classroom? To resolve this question, the following study was conducted.[1]

Experimental Design

During the 1971 fall quarter, all students enrolled in Economics 1-001 (Principles of Economics—Macroeconomics) were selected as a control population. This total population was divided into 14 sections which met three times each week as a section and once a week for a mass lecture. Enrollment in each of the sections was essentially a self-selection process on a first-come, first-serve basis. Students were not aware of which staff member would be assigned to any of the sections being offered between 8:00 a.m and 4:00 p.m., Monday through Friday. The average size of the sections was 25. The mass lecture was handled by senior faculty while the 14 sections were conducted by seven graduate student instructors (GSI), each teaching two sections.

During the fall quarter, the seven GSIs were precluded from participating in or having knowledge about the videotaping or seminar. Similarly, these seven instructors for the control groups and their students were unaware of both the experimental design and the hypotheses being tested. However, all the Economics 1-001 students in the fall term responded to questionnaires dealing with student characteristics and were pre- and posttested on the Test of Understanding in College Economics (Part I, Forms A and B). Post-course student evaluations of each instructor's performance were also collected on the Purdue Rating Scale for College Instructors.[2]

The Purdue Rating Scale for College Instructors is a recently developed questionnaire with 27 items. Each question associates with one of five factors representing the instructor's (1) personal characteristics, (2) objectivity, (3) exposition, (4) tests and grades, and (5) subject matter knowledge. Similarly, each question is posed in such a fashion as to give description for appropriate corrective action—i.e., each is expressed in performance criterion terms. Reliability tests and appropriate validation for the instrument have been produced at Purdue University.

In order to control for the experimental training of instructors, the *same seven GSIs* were used as the experimental group during the winter quarter when Economics 1-001 was again offered. The experimental group of 438 winter quarter students was again divided into fourteen sections with an average section size of 31. As with the control students, all the winter quarter experimental students responded to the questionnaire, the Purdue Rating Scale, and the TUCE. Subsequent tests on selected student characteristics and pre-TUCE scores revealed no significant differences between the control and experimental groups (see Table 1 and study results below). All sections and instructors in both the fall and winter quarters used the same instructional materials, senior faculty for the mass lectures, and departmental course syllabus.

[1] The study described in this paper was conducted experimentally during 1971-72 and was fully implemented during 1972-73.

[2] Copies of the Purdue Rating Scale for College Instructors as well as the survey questionnaire will be sent by the authors on receipt of a self-addressed envelope with sufficient postage for 2 ounces.

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The experiment was designed in such a way that the seven instructors were randomly selected from a total of 22 GSIs in the fall of 1971. They were then given only a syllabus and section assignments and were not provided with any other assistance or training—i.e., the norm for most GSIs at large universities. However, during the winter quarter these same seven GSIs were systematically exposed to the department's three-part training system.[3]

The GSI Training System[4]

Each week throughout the winter quarter the seven experimental instructors met together in an informal seminar with the authors of this study and another senior faculty member from the economics department. Such topics as the purpose and scope of introductory economics, student-teacher interaction and discussion techniques, teaching techniques for various concepts, integration of supplemental readings and lectures with the syllabus and text, orientation and familiarization with the literature on teaching at the college level, introduction to the economic education literature at the collegiate level, how to plan and establish learning objectives for each class or unit, and how to construct tests and measure student performance made up the content of the seminar.

As a second component of the GSI training system, each instructor was videotaped three times during the quarter. Following each 45-minute videotaped class session, approximately two hours were spent reviewing and critiquing each tape with the individual instructor.[5]

In conjunction with the videotaping, two instruments were developed to assist both the instructor and the reviewing procedure.[6] Prior to each class designated for videotaping, the instructor completed a questionnaire directed to the objectives, content and techniques expected to be covered during the

[3] Although most of the GSIs in this experimental study had teaching experience prior to their participation in the project, a weakness in the design of the study is the possibility that any superior performance in the winter quarter may be attributed to their maturation and or additional experience. However, similar data on student and GSI performances from an earlier study with the introductory course at the University of Minnesota indicate that the additional experience of only one term is not significant [5]. In fact, the obverse was true in the current study. The GSI who had the most previous teaching experience was the GSI in the fall term with the lowest student and instructor performances and subsequently showed the most improvement as a result of the training system. On the other hand, the two GSIs with the least teaching experience were among the top three in student and instructor performances during the fall term.

[4] A number of excellent discussions concerning the reliability, validity and usefulness of many of the procedures and components included in the Minnesota GSI Training System can be found in recent publications by Eble [2, 3, 4], Costin, *et al.* [1], and Nowlis, *et al.* [7].

[5] As an additional incentive for soliciting GSI participation in the project, the "best" instructors were encouraged to retain the videotape of their best performance (usually their third) and include this as a part of their vitae for subsequent employment. In addition, each of the participating instructors was assured of anonymity throughout the entire training and evaluation proceedings. Both of these practices have continued in the subsequent training of GSIs at the University of Minnesota.

[6] Copies of both instruments will be sent by the authors on request.

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class period. This information was subsequently reviewed and compared with the videotape during the critiquing session.

The second instrument was constructed so as to measure actual instructor performance from the videotape. Prior to the review session with each instructor, a specially trained graduate student in economics previewed and coded each tape at 20-second intervals according to a specially adapted observation scheme which measured (a) the method employed (lecture, question problems, discussion, other), (b) the learning objectives (knowledge of facts, theoretical concepts, exposition on theory, simple application, complex application) and (c) the verbal and nonverbal expressions (supportive, receptive, neutral, unresponsive, disapproval). The data were then summarized and presented to the GSI during the review session.[7]

The data from this latter instrument have proven valuable in at least two regards. Instructors, like students, respond to those things which are being measured. Secondly, the instrumentation was able measurably to confirm or reject those things the instructor said (thought) he was doing in his classroom. It also reinforced the reviewer's intuitive critique and comments.

The third facet of the training system involved student evaluations of the instructors' performance. As discussed above, the Purdue Rating Scale for College Instructors was given to all students in each of the seven GSI's fall classes. The results were then discussed during the winter quarter videotaping review sessions with each of the instructors. Suggestions and strategies for improvement for each low-rated item were then developed. This instrument and this procedure facilitated not only the training of GSIs, but provided for built-in evaluative comparisons with the subsequent winter quarter instructor ratings.

Description of Experimental Results

As Table 1 indicates, the winter quarter experimental group did not differ significantly from the fall quarter control group in any of five matching variables—i.e., Sex, Age, Cumulative Grade Point Average, ACT Score, and Pre-TUCE—at the two-tailed .05 criterion level being employed in this study. Consequently, with the same instructors teaching in both the fall and winter quarters, the groups were considered adequately matched for the purposes of this study.

The Pre-TUCE data in Table 1 also indicate that the Minnesota scores for both the experimental and control groups approximate the national norm of 13.24 at the outset of each quarter term. Post-TUCE scores for the fall quarter control group also approximate the national norm of 19.08, further indicating normality for the contol sections [8].

Impact of the Training System on Student Learning

As Table 1 indicates, the winter quarter experimental students clearly outperformed the control students in economic understanding. Not only were the differences between group Post-TUCE scores significant, but the

[7] An additional "Summary Checklist" for the videotape reviewing was also constructed and will be sent by the authors on request.

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Table 1

Description of Student Characteristics, Performances and Evaluations: Fall and Winter Quarters

Variables	Fall Quarter $N = 323$ 14 Sections		Winter Quarter $N = 438$ 14 Sections		t-test Comparing Means
	Means	S.D.	Means	S.D.	
Sex (0,1) Male = 1	.71	.45	.70	.46	.30
Age (17-38)	20.49	3.09	20.80	2.74	1.43
Grade point average (0-4)	2.73	.51	2.77	.48	1.09
ACT score (0-36)	24.88	3.18	24.46	3.63	1.50
Pre-TUCE (0-33)	13.52	3.70	13.04	3.96	1.71
Post-TUCE (0-33)	19.46	4.70	20.11	4.53	1.97*
Change-in-TUCE	5.94	4.52	7.07	4.67	3.36**
Average instructor rating (1-6), 1 = very low	4.11	.84	4.46	.78	5.68**
Rating scale subparts:					
1. Personal evaluation (1-6), 1 = very low	4.41	.90	4.76	.85	5.42**
2. Objectivity evaluation (1-6), 1 = very low	4.32	.91	4.70	.86	5.82**
3. Exposition evaluation (1-6), 1 = very low	3.82	1.10	4.32	.99	6.45**
4. Testing evaluation (1-6), 1 = very low	3.89	.95	4.10	.92	3.05**
5. Knowledge evaluation (1-6), 1 = very low	4.26	.93	4.52	.81	4.02**

*Significant at the .05 level.
**Significant at the .01 level.

Change-in-TUCE scores (Post-TUCE minus Pre-TUCE) also indicated significant differences. The experimental group exhibited a 54 percent gain over their Pre-TUCE score while the control group experienced only a 43-percent gain in output added.* The gains for the control group are comparable to the national norming data for the TUCE wherein students from four-year colleges showed average gains of 40.3 percent. The experimental

* Any discussion of output added on the TUCE must be qualified with the recognition that the output-added function is clearly nonlinear; there are easy questions, questions of "medium" difficulty, and some which are very difficult. In fact, the test was designed this way in terms of cognitive composition. It is therefore somewhat inappropriate to compare increments on this test, as constructed. For example, at the extreme a student moving his total score from 3 to 6 on the TUCE has picked up much less economics than a student moving from 28 to 31. Only on a truly "linear test" can these types of comparisons be safely made.

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group's performances were clearly superior.

Although the significance of the training system's impact on student learning is clearly evident from the above-given data and discussion, a more controlled analysis can be performed by fitting the student descriptors, evaluations and test results to a multiple linear regression model.

The equation for the model takes the familiar linear form wherein

$$Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + \ldots + b_7 X_7 + e$$

Post-TUCE, the dependent variable, is assumed to be linearly related to the following independent predictor variables:

X_1 = Pre-TUCE (0-33), continuous
X_2 = ACT score (0-36), continuous
X_3 = Cumulative grade point average (0-4), continuous
X_4 = Age (17-38), continuous
X_5 = Sex (1 = male, 0 = female), dichotomous
X_6 = Instructor evaluation (1-6; 1 = very low), continuous
X_7 = Class type (1 = experimental in winter quarter, 0 = control), dichotomous

Five of the variables (Pre-TUCE, ACT, GPA, Age and Sex) were chosen on the basis of past research, generalizability and their qualities as educational realities which teachers of the introductory course must accept (and can measure) when trying to influence student learning.[9] The last two variables included in the model (Instructor evaluations and Class type) were unique to the situation studied.

The type of class attended (experimental or control) was the key variable. In the multiple linear regression model, the coefficient of this variable measures the residual contribution of the GSI training system to student achievement in introductory economics.

A stepwise regression procedure was employed which entered each variable into the equation in order of significance. The data, as fitted to the multiple linear regression model described above, are presented in Table 2.

As Table 2 indicates, when the data were fitted to the multiple linear regression model, the significance of the earlier *t*-statistics was confirmed. Controlling for prior knowledge in economics (X_1), mental ability and achievement (X_2, X_3), maturation (X_4), sex (X_5) and student evaluations of the instructor (X_6), the type of class (X_7) with experimental involvement in the project did have a significant association with the students' Post-TUCE scores.[10] The model predicts that a student attending a class which was involved with the GSI training system would, on the average, score almost three-quarters of one point (.71) more than nonparticipants on their Post-TUCE scores.

[9] A number of other possible independent variables were considered for inclusion. However, such other variables as math background, major and family background were found to be nonsignificant in other similar studies and/or intercorrelated with those identified in this study. Moreover, for policy purposes only those independent variables which were identifiable prior to the course were included.

[10] All variables in this model were found to have intercorrelations of .21 or less in the correlation matrix except ACT and Pre-TUCE. They had a correlation of .31, a degree of intercorrelation but not detrimental to the model's analysis since they were both significantly correlated with Post-TUCE.

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Table 2

Regression Results from GSI Training Program
(*t*-statistic in parentheses)

Independent Variables	Dependent Variable: Post-TUCE N = 761 Students (323 Control and 438 Experimental)
X_1 Pre-TUCE (0-33)	.34 (7.44)**
X_2 ACT (0-36)	.36 (6.81)**
X_3 GPA (0-4)	.02 (4.70)**
X_4 Age (17-38)	.19 (3.25)**
X_5 Sex (0-1; 1 = male)	1.43 (3.88)**
X_6 Instructor evaluation (1-6; 1 = very low)	.43 (2.16)*
X_7 Class type (0-1; 1 = experimental in winter quarter)	.71 (2.12)*
Constant	-5.24
Standard error	3.88
Adjusted R^2	.30

*Significant at .05 level.
**Significant at .01 level.

The regression model also indicates that the six other variables significantly associate with student achievement in economic understanding. Prior knowledge in economics (X_1), mental ability and achievement (X_2, X_3), maturation (X_4), sex (X_5) and student evaluations of the instructor (X_6) were all found to be significant.[11] These findings are all consistent with the results of other research in this field [6].

Impact of the Training System on Instructor Performances

The data in Tables 1 and 2 also confirm that the GSI training system had measurable and significant influences on the instructors' actual performances as measured by student evaluations. Not only was there a significant difference between quarters in the total Rating Scale for all the instructors, but each of the subparts to the Rating Scale were also significantly different between the experimental and control groups. In turn, these changes in GSI performances associated significantly with student learning as confirmed by the Instructor evaluation variable (X_6) in the regression model of Table 2 with Post-TUCE.

It is important to note that throughout the experimental quarter's videotaping review sessions each instructor was presented with the Rating Scale (student evaluations) results from the previous course. Suggestions and strategies for improvement were then developed with each instructor for

[11] The possibility of significant interaction terms (between X_6 and X_2, X_2 and X_7, X_3 and X_7, X_2 and X_4) was also examined in subsequent regression models. The results were essentially the same as those found in Table 2. No significance was found in any of the added variables.

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each low-rated item. The instrument and these procedures were apparently effective.[12]

Individual instructor ratings are summarized in Table 3 for each of the two groups with respect to the Rating Scale and its subparts. With one major exception (Instructor IV), all the GSIs increased their rating scores for almost all the subparts to the Rating Scale. It is important to note that the only instructor whose ratings dropped (Instructor IV) developed mononucleosis during the experimental quarter and was the least active and enthusiastic participant in the training system. This illness and behavior undoubtedly carried over into his teaching performance as well. In testing, for example, he simply pulled old exams from his files. It is also interesting to note that Instructor V was an office mate with Instructor IV and used the same tests as did Instructor IV. Consequently, both instructors went down in their student ratings dealing with "tests and grades." Both the students and the Rating Scale instrument are apparently sensitive to such behavior and circumstances.

The student evaluations, as revealed by the Rating Scale, were also substantiated in early videotape reviews during the experimental quarter. Both the reviewer in his observations and the actual videotape coding procedure revealed the same strengths and weaknesses as the student evaluations of GSI performances. High instructor ratings on "Personal characteristics" and "Exposition" skills were supported by high coding frequencies on "Supportive" and "Receptive" categories of verbal and nonverbal expressions; high instructor ratings on "Subject matter knowledge" were supported by high coding frequencies on teaching methods other than "Lecture" and on higher level learning objectives such as "Complex applications." The consistencies between these two instruments, along with the actual videotaped observations, were persuasive evidence in getting the GSIs to change their teaching behavior.

Summary

This study has confirmed that a systematic teacher training program involving Graduate Student Instructors of introductory economics with an integrated series of student evaluations, videotaped observations and instructional seminars can have a significant and measurable impact on both student and instructor performances in the classroom. Specifically, it was found that as a result of the training system (a) student performance, as measured by the TUCE, and (b) instructor ratings, as measured by the Purdue Rating Scale for College Instructors, both increased significantly. It was also found that instructor ratings, as measured by student evaluations on the Rating Scale, associate highly with student performances on the TUCE.

The experimental efforts and results of this study suggest that other institutions and departments of economics can and should undertake greater responsibilities for providing their graduate student instructors with teacher

[12] The reliability, validity and usefulness of student ratings of college teaching are also persuasively presented in an excellent review article by Costin, Greenough and Menges [1].

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Table 3

Student Ratings of Instructors

Subgroups		Range	Average: All Instructors	Individual Instructors I	II	III	IV	V	VI	VII
Personal characteristics (Questions 2-3-6-17-21-25)	Fall	3.90-4.97	4.39	3.90	4.97	4.09	4.89	4.65	4.18	4.03
	Wtr.	4.33-5.41	4.74	4.33	5.41	4.55	4.54	4.78	4.69	4.86
Change from fall to winter			.35	.43	.44	.46	(.35)	.13	.51	.83
Objectivity (Questions 7-10-19-23)	Fall	3.90-4.91	4.30	3.98	4.91	4.19	4.59	4.60	3.95	3.90
	Wtr.	4.26-5.26	4.68	4.46	5.26	4.56	4.26	4.80	4.59	4.83
Change from fall to winter			.38	.48	.35	.37	(.33)	.20	.64	.93
Exposition (Questions 11-13-14-15-22)	Fall	2.86-4.59	3.78	3.47	4.59	3.70	4.49	4.12	3.20	2.86
	Wtr.	3.82-5.14	4.30	3.82	5.14	4.16	4.16	4.37	4.17	4.25
Change from fall to winter			.52	.35	.55	.46	(.33)	.25	.97	1.39
Tests and grades (Questions 1-4-9-16-20-27)	Fall	3.18-4.50	3.87	3.34	4.32	3.63	4.50	4.25	3.84	3.18
	Wtr.	3.52-4.62	4.08	3.52	4.62	4.28	3.97	4.12	4.10	3.97
Change from fall to winter			.21	.18	.30	.65	(.53)	(.13)	.26	.79
Subject matter knowledge (Questions 5-8-12-18-24-26)	Fall	3.28-4.89	4.24	4.23	4.69	4.15	4.89	4.32	4.09	3.28
	Wtr.	4.17-4.98	4.52	4.55	4.98	4.42	4.44	4.46	4.62	4.17
Change from fall to winter			.28	.32	.29	.27	(.45)	.14	.53	.89
Overall (Averaging above subgroups)	Fall	3.45-4.70	4.11	3.78	4.70	3.95	4.67	4.39	3.85	3.45
	Wtr.	4.14-5.08	4.46	4.14	5.08	4.39	4.27	4.51	4.44	4.42
Change from fall to winter			.35	.36	.38	.44	(.40)	.12	.59	.97

training. The specific components of the Minnesota training system are not costly in either set-up terms or in maintenance. Most of the developmental costs have already been assumed in the creation of the instruments for evaluation and codification. The fixed costs for the videotape equipment totals only $2,400. Only three real departmental resource inputs are needed for maintaining and monitoring the system: (1) the senior faculty member meeting with the seminar for approximately 10-15 hours each quarter, (2) an undergraduate student with a quarter-time appointment for setting up, recording and taking down the videotape equipment for each class session recorded, and (3) an outstanding graduate student instructor with a half-time appointment in economics for previewing, coding and critiquing each class session tape and for handling the logistics of the seminar, student evaluations and videotaping procedures. Each of the two students can be trained for the system in less than five hours. With these resources, experience at Minnesota indicates that approximately 7-10 GSIs can be processed through the entire system within one quarter—i.e., the seminar, three videotaping episodes for each instructor and student evaluations. The Department of Economics at Minnesota has found the results in student and GSI performances and GSI satisfaction to be worth the costs in time, effort and dollars.

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"Profitopia"—A Simulation for Introductory Economics

William D. Spector
Salem State College, Salem, Massachusetts

Introduction

The students in my semester course in Principles and Problems of Economics are not as a rule majoring in economics. Many are majoring in nursing, social service and education. When I tried using the lecture and discussion approach I found it difficult to get the students involved, for they had little experience in even the most elementary economic activities. The lecture technique simply reinforced their passive attitude toward the material, and I had little success in stimulating discussions. I began to use films, but the students remained passive—being entertained at best, and bored at worst.

Finally, I examined the literature on games to see what had been published for classroom use. The department purchased the game "Marketplace," and although I found it useful it did not contain enough material to become the major activity for an entire course. There were very few others designed for college students, so I decided to develop my own role-playing simulation game and write hand-out material for my classes. The simulation would be the focal point for the whole course, for it would reflect economic reality. Some of the major goals were as follows:

- To relate economic theory to the students' personal experiences and to economic issues in which they are involved.
- To change introductory economics from a passive and sterile course to an exciting and active experience.
- To teach students to use the inductive method of obtaining knowledge and dealing with problems in the social sciences.
- To fuse microeconomics and macroeconomics so that the student becomes involved in aggregative issues as well as consumer and personal problems.
- To help students to understand the market system, the role of the corporation, economic growth, monetary and fiscal policy, the problems of poverty and unemployment, and other related concepts and issues.

The traditional technique begins with theory and then suggests applications. The connection between theory and reality is often weak, however. In contrast, the simulation was designed to place students in a complex world and through economic theory they are asked to "create order." The student observes reality and tries to understand it by formulating hypotheses, extending his or her knowledge, analyzing the economy, and apply-

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ing principles to realistic situations. The classroom becomes "Profitopia," an imaginary nation possessing many of the characteristics of the United States.

The Simulation

All students in the class become "citizens of Profitopia." Before plunging into the role-playing situation, however, they must learn a simple double entry accounting system which I designed with the help of some students majoring in business administration and accounting. This system serves as a useful tool to introduce some basic economics, for the students learn definitions of production, the relationship between inputs and outputs, the concept of capital consumption (depreciation), and principles relating to costs (average, total and marginal) and revenues. They are also introduced to fixed and variable costs, profits, rates of return, wealth, income, standard of living, and stockholders' equity.

The student's goal in the simulation is to maximize consumption over the entire semester. Each student is expected at least to maintain his or her standard of living, if possible. Initially, each receives a certain amount of cash in the form of "Grones"—the national monetary unit (abbreviated G). Students receiving only 1,000 grones are in the "lower class," those getting G2,000 are "middle class," and recipients of G3,000 are in the "upper class." The only consumer good is "Stash," one unit of which is equal to the minimum yearly requirement of food, shelter and clothing. The lower-class student who purchases one unit of stash is living at a bare subsistence level. The lower-class students are required to purchase this amount, while the middle-class individuals purchase two units and the upper classes purchase three. A person who manages to increase his income will increase consumption and move into a higher class. Those who cannot purchase one unit of stash automatically have malnutrition. This can be cured, but medical costs are ten percent higher than the average price of stash in any given "year." The individual who cannot purchase stash or obtain medical care for a "two-year" period will die, but he or she can be reincarnated as an immigrant in order to continue in the game.

In addition to being consumers, all students are either corporate executives or workers in manufacturing, services or government. Business corporations are formed, such as the East Profitopia Mining Company, the Honest Raw Materials Company, the Reliable Machine Company, and the Survival Insurance Company. Prices and wages are not fixed, but are set by a bidding and asking process in the marketplace. Market forces and the relative economic power positions of the players determine prices. The corporations have Boards of Directors (made up of upper-class people), and they sell common stock. There is also a commercial bank, a central bank and a tax system. The "government" levies taxes (initially, the people pay a ten-percent tax on all personal income) and sells government bonds. Each bond costs G450 and matures in one year to G500. The rate, however, is subject to change. The central bank may purchase government bonds, and may extend loans to the commercial bank at a discount rate of ten percent.

Play money and certificates marked "labor," "Stash," "machine," "tool," and the like, are used. Certificates are exchanged for money when

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the items they represent are "sold," and inputs are exchanged for outputs as symbolic production. Tools are "imported" from another country, and the importer must obtain a foreign exchange draft from the commercial bank who in turn purchases the drafts from the central bank. The central bank has official foreign exchange reserves in a bank in the other country, and that reserve is decreased when tools are imported. Eventually, there is a foreign exchange crisis as these reserves are depicted. Of course, Profitopia has a balance of payments deficit.

Before playing the game, the students become familiar with various production alternatives. For example, one "labor" and one "tool" will produce two pounds of "raw material." One "labor," one "tool" and one pound of "raw material" will produce one "machine" that lasts for two years. The stash production possibilities are more complex and are dealt with in production hand-outs. As in real life, various unexpected happenings create problems. Illness strikes some of the players, and others are the victims of robberies. (A roll of the dice identifies the victim in each instance, for the students have numbers for identification, and three dice are used.) Of course, the students can purchase policies from the insurance company to cover these disasters. A simple political mechanism makes it possible for the class to establish such things as welfare systems. (A petition signed by one-third of the class brings the proposal to a vote. A simple majority vote suffices to implement the scheme.) Labor unions can be formed, and new corporations may be established. Mergers can occur, and firms may go bankrupt. In the latter case, the company's assets are auctioned and sold to the highest bidder.

Actually, there are several games, each of which has a different purpose. One game is designed to help students to understand concepts and problems related to profit maximization and competition. Patents are owned by a machine company and by one stash company, with the competitors each holding licenses. The mining company is a monopoly, but its raw materials are subject to a ceiling price set by the government. The income of the population helps to determine the demand for stash, which in turn affects the demand for machines, tools and raw materials. Of course, the demand for labor is also affected, and this in turn helps to determine the income of the population. The students soon learn about economic interdependence and how all decisions are interrelated. After playing the game, the students discuss the events and form hypotheses on causes and effects. Shortages, surpluses, equilibrium, profit and price determination will be among the topics. Accounts are then due, and all prices and rates of return on equity and on common stock are announced. It is amazing how some corporations that were crying bankruptcy during the game will actually report huge profits. Some will do better than others, and many students become extremely angry over such things as their inability to obtain enough raw material to fulfill their production plans. During the next "year" (game) new corporations can be founded if the students can raise enough money through the sale of common stock. Wage determination is often discussed, for some wages actually fall below the subsistence level. Wages vary, of course, leading to discussions of productivity, on-the-job training, and the theory of the dual labor market. Issues involving labor unions are introduced. Macroeco-

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nomic concepts are brought in, and the GNP and NNP are calculated for each "year" from the data recorded in the various accounts.

There are also games devoted to the problems of technological change and the impact that war can have on an economy, as well as an international economics game in which the class learns about foreign exchange, the financing of imports and exports, the pros and cons of devaluation, and similar topics.

Conclusion

Because of space limitations, this report omits many of the details of the games. The technique was effective, however, and others could easily adopt the basic ideas, varying the specifics to meet different conditions and needs. The final examination required the students to apply the economic concepts they had learned to a situation like that experienced during the simulation. After setting forth basic conditions in the fictional Profitopia (such as population, resource use, specific inputs and outputs, prices, imports, and the like), the test included questions on such things as what the unit price of a machine would be, the total of wages and salaries that would be paid, the NNP, real GNP, how the economy would be affected if another country started to produce cheaper machines, the inflationary impact of war, and so on. It was an enjoyable experience for the students, who found that economic principles *do* have meaning and can be learned in a relatively simple and painless way.

Providing Choice Overcomes the Dismal Science Syndrome

Eleanor D. Craig and James B. O'Neill
University of Delaware, Newark, Delaware

Introduction

Too often, all of us have read or heard such student comments on the introductory economics course as: "This was a great course considering it was economics." Our goal was to remove the stigma sometimes associated with our discipline by revitalizing the course to provide a variety of expe-

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riences organized cooperatively with students and instructors. We wanted to do more than foster cognitive understanding, in the hope that the students would develop a knowledge and appreciation of economics beyond simply recognizing the name of Keynes several years after completing the course.

EC 101 is the introductory, one-semester macroeconomics course. Most students are freshmen or sophomores majoring in the physical sciences, business, the social sciences, the humanities, education or home economics. The class in the spring of 1973 was made up of 225 students in our section, and 613 in other sections. We divided the course into two segments—the first was a ten-week period concentrating on the core material; the second was the final four-week period in which students could make individual or group choices regarding ways to reinforce their learning in areas of particular interest to them. The innovative aspect of the course was the way in which the two parts were integrated and the means by which students were allowed to make choices.

The First Ten Weeks

A curriculum package published by the Sterling Institute (of 2600 Virginia Avenue, N.W., Watergate, Washington, D.C.) was chosen for the core material. This package provides for a self-instructional approach, and it lent itself to our plans to apply the basic material to current events and real-life situations, to give students the opportunity for feedback, to offer individual consultation and guidance, and to arrange for optional "work sessions" on the core material. An assignment sheet was prepared which listed required readings on such topics as the nature of economics, production possibilities, demand and supply, the circular flow, income, and fiscal and monetary policies. One required session each week was devoted to economic theories and their applications. Another was used for questions, answers and discussion; and all students took a test every two or three weeks. In those sessions dealing with the application of theory, the instructors often took different policy positions in order to stimulate discussion. Another direct benefit of the team approach was that we could provide feedback to each other regarding our presentations.

The case study approach was initiated early in the semester to give students an opportunity to examine issues of importance to them. The basic method was to apply economic principles to current events. Newspapers provided a wealth of material, such as an article entitled "Prices of Gasoline are Likely to Climb, Perhaps Very Sharply." A knowledge of the laws of supply and demand would enable the students to analyze the problem regarding an item which many of them commonly purchase.

In application exercises, students were asked to play the roles of policymakers and analyze issues using the problem-solving method. They would have to consider such questions as what might cause a shift in the supply or demand curve for gasoline, and how government price controls might affect the situation. Students were also asked to explore the possible implications of gasoline rationing on other markets (such as tourism and the auto industry). Possible effects on the factor market were also considered. This issue provided an excellent opportunity to examine the impact of such govern-

mental agencies as the Civil Aeronautics Board as well. Shortly after our study of the gasoline market, a student brought in a newspaper editorial entitled "It's About Time the Airlines Ended Those Charter Abuses." A committee was formed to study the role and objectives of the CAB and to find out how CAB policy affects them as consumers. The class decided that a debate between a CAB administrator and an economist would be fruitful, and this was arranged. As a result of this activity, the students were able to see how public policy often modifies the conventional textbook picture of supply and demand. (In this case, they learned that air carrier market decisions are modified by controls over rates and fares, entry and exit, and mergers and acquisitions.)

At the end of the ten-week period the students were presented with a final problem designed to give them an opportunity to apply the fiscal and monetary theories they had studied. The problem involved a fictional economy experiencing a recession, and the students were to analyze the situation and recommend policies that would stimulate the economy. The class was divided into two groups for this purpose, and each played the role of the Council of Economic Advisors. Spokesmen were elected to make 15-minute presentations setting forth their group's recommendations. A panel of three graduate students evaluated the recommendations, and the best presentation resulted in "bonus points" for each of the group's members.

Computers were also used during this period. Four computer science majors had come to us to ask if they could apply their skills to economics. This provided another special interest project in which our students could use the tools of macroeconomics. After reading Richard Attiyeh's "A Macroeconomic Model for the Classroom,"* the computer science students developed programs in which the economics students would make decisions regarding changes in government spending and taxes for eight time periods. They would have to react to such things as unusually high increases in the price index or in the unemployment rate. Immediate feedback would be obtained through the time-sharing terminal. An optional activity which could be used to earn up to five points in lieu of a discussion question on the examinations was to have the students write up the results of "their economy" from year to year as if they were economic advisors to the President.

Still another optional activity emanated from our case studies, for students could select articles and apply economic analysis to current issues. This made them realize that there are economic implications to almost every issue, private as well as public. As the semester progressed, the students demonstrated on increasing level of sophistication in economic analysis. Concepts relating to investment, marginal efficiency of capital, aggregate demand, inflation and many others were applied to articles on such diverse subjects as the impact of consumer demand on American production and the problems faced by the owners of the "flea bag" hotels in Paris.

The Last Four Weeks

In the final four weeks the students were able "to do their own thing."

* In Keith G. Lumsden, Ed., *New Developments in the Teaching of Economics* (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1967), pp. 65-73.

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They were permitted to choose from the following options: (a) tutorial sessions; (b) enrichment; (c) seminars on wage-price controls; (d) individual projects. Each of these is briefly described below.

Tutorials

Twenty top students were selected according to their total performance and asked if they would be willing to serve as tutors. Nineteen agreed, and they were then paired with the 19 lowest-ranking students. They were to meet as "pairs" for a minimum of six hours, and to spend at least one-half hour with an instructor to discuss any problems. Aside from two pairs that failed to work out (one because of scheduling difficulties and the other because of an apparent personality conflict), there was great enthusiasm for the tutorials. Indeed, this was one of the most rewarding parts of the course. The TUCE (Test of Understanding in College Economics) was administered at the beginning of the semester, after the first ten weeks, and again after the tutorial work was completed. The students receiving tutorial assistance achieved a mean score of 10.8 on the pretest, rose to a mean of 16 after ten weeks, and then gained an additional four points after the tutorial experience.

Enrichment

The Sterling Institute publishes an additional volume of theoretical material, similar in format to the preceding volumes, but far more difficult in content. It covers about one-fourth of the material found in our intermediate macroeconomic theory course. The 20 students who selected this option studied the material independently and attended required discussion-lecture sessions on applications of each of the segments—comparative systems, government, and foreign trade influence on national income and monetary theory. They were given the Sterling multiple-choice tests on these segments, as well as essay questions on each.

Wage-Price Control Seminars

Much of the material covered in the introductory macroeconomics course relates to supply, demand, the functions of prices, inflation and unemployment. The experimental wage and price controls then in existence provided a wealth of illustrative material, and some of the students became so interested that we decided to offer three seminars on wage and price controls. They were assigned to read Jerry E. Pohlman's *Economics of Wage and Price Controls* (Columbus, Ohio: Grid, Inc., 1972) and recent news articles. The discussions were based upon questions handed out in advance. Among the questions were the following:

- Why is inflation a problem for our balance of payments?
- Why is cost-push inflation more responsive to controls than demand-pull inflation?

Afterwards each student also wrote a short paper. The papers were intended to enable the students to bring up to date the material in Pohlman's book.

Individual Projects

We wanted students to relate economics either to their academic majors

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or to other areas of interest. Thus, a wide variety of projects resulted. A student preparing to be an elementary school teacher wrote two stories designed to teach such economic concepts as specialization and exchange to children at the second and third-grade levels. Another student majoring in foods and nutrition made a study of beef prices and submitted her findings as an editorial letter to a local newspaper. A third student, planning to become a meteorologist, examined the effects of climate variations on agriculture, construction and retail sales. He discussed such things as the impact of a cold snap on the Georgia peach crop, losses sustained by the construction industry because of weather variations, and the effect of rainy days on retail sales in certain areas.

Conclusions

As measured by the TUCE, our students' performance was clearly satisfactory. Table 1 shows that the students in our sections achieved a mean gain slightly higher than that of the students in other sections, even though we administered the posttest after ten weeks of instruction while the other instructors gave the test after 14 weeks. The students' perception of their learning was considerably higher as well.

Table 1
Summary Results

	N	Pre-TUCE	Post-TUCE Form A	Gain	Student Perception of Learning**
Other sections	613	12.2	22.6	10.4	2.20
Craig & O'Neill section	225	11.0	21.8*	10.8	1.23

* Test given after the ten weeks of the semester as compared with 14 weeks in the other sections.

** Perception of Learning: Scaled 1-5 with (1) being most favorable and (5) the least favorable with the following question: "Entirely aside from the grade I expect in this course, I feel that, as a result of taking it, I have learned: (1) Very much . . . (5) Very little."

One of our most important considerations in planning this course was to capture the student's interest and enthusiasm for economics. We measured this in two ways—by giving a pre- and postattitudinal questionnaire and by analyzing standard course evaluation forms which all students who take courses in our college must complete.

Four questions which we chose to analyze from the attitudinal questionnaire were:

1	2	3	4	5
Strongly agree		Can't decide		Strongly disagree

1. "Economics courses help to prepare the students to face the problems

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of everyday life"

2. "The materal covered in economics is extremely interesting"
3. "Is the knowledge which you obtain from studying economics worth the time and effort you put into studying the subject?"
4. "You would recommend a course in economics to a fellow student who has never studied the subject."

Table 2, below, shows the results. All differences between pre-and post-test means proved to be significant beyond the .001 level.

Table 2
Attitudinal Questionnaire

Attitude	Pretest		Posttest		Differences		
Question	Mean	S.D.	Mean	S.D.	Mean	S.D.	*t*-test
1	2.1	0.81	1.8	0.84	-0.3	0.84	-3.38
2	2.7	0.95	2.0	0.94	-0.6	1.05	-5.90
3	2.3	0.90	1.5	0.70	-0.7	1.06	-6.72
4	2.4	0.97	1.7	0.91	-0.7	1.13	-6.04

Reflecting on the students' performance over the past semester, we can make several concluding remarks. Students generally did perform well on all tests (including those designed by instructors, department and nationally standardized). Secondly, the previously mentioned question regarding the students' perception of learning indicated that students concluded they did learn and, most importantly, learned more than the traditional classes. Thirdly, the above-mentioned questions indicate that some positive steps may have been achieved regarding learning in the affective domain. Fourthly, although there was significant time input by instructors, the role of teacher was somewhat modified in being a facilitator of learning and providing an opportunity for students to learn through peer interaction. Finally, one of the outcomes of the methods used to teach this course can only be measured in a qualitative manner. It was the most exciting teaching experience either of us has had. The students were tremendously perceptive and excited. The interaction between us and the students was more positive and productive than we could have imagined.

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